



CALIFORNIA
BUSINESS AND ECONOMIC DEVELOPMENT

Draft GO-Biz Hydrogen Permitting Guidebook

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The Governor's Office of Business and Economic Development (GO-Biz) appreciate the contributions from the staff listed below.

Lead Authors

Lillian Liu, Program Manager, Hydrogen and Fuel Cell Market Development, GO-Biz

Jennifer Hamilton, Hydrogen Fuel Cell Partnership

Contributors

Lance Dornan, Market Development Analyst, GO-Biz

Jessie Denver, Lead Advisor, GO-Biz

Gia Vacin, Deputy Director, GO-Biz

Catherine Dunwoody, Hydrogen Program Advisor, GO-Biz

Tyson Eckerle, Senior Advisor, Clean Mobility and Infrastructure, GO-Biz

Cortney Copeland, Program Manager, GO-Biz

Bart Croes, Retired Annuitant, California Energy Commission (CEC)

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Executive Summary

Hydrogen is an energy carrier that is critical for reducing pollution and meeting California's climate goals. The Hydrogen Permitting Guidebook ("Guidebook"), developed by the Governor's Office of Business and Economic Development (GO-Biz), is designed to help California's local planning authorities and renewable hydrogen project developers navigate and streamline the hydrogen project development process. The first and second editions of the Guidebook, published in October 2015 and September 2020, respectively, focused specifically on hydrogen fueling station development. In this third edition, GO-Biz expanded the scope of the Guidebook to include hydrogen production facilities and midstream storage and delivery infrastructure.

California's renewable hydrogen market expansion is evolving from a light-duty vehicle focus to a broader full-scale hydrogen ecosystem that encompasses hydrogen adoption across key sectors: transportation, power, ports, aviation, agriculture, maritime shipping, and heavy industrial processes. This shift is driven by the state's mandates to meet 100% zero-emission medium- and heavy-duty vehicles, 100% carbon-free electricity, and carbon neutrality by 2045. As the state progresses toward these goals, additional clean energy infrastructure like renewable hydrogen production, midstream delivery infrastructure, and fueling stations must be increasingly permitted and deployed.

The third edition of the Hydrogen Permitting Guidebook is designed to provide clarity and predictability into the framework for developing and permitting renewable hydrogen projects in California. This Guidebook is intended to serve as an informational resource and a best-practices guide. Although use of this document neither guarantees the issuance of a permit nor supersedes the authority having jurisdiction (AHJ), it is written to point project developers and local authorities in the right direction.

The Guidebook consists of five parts:

Part 1: California's Renewable Hydrogen Landscape: Provides an overview of the state's climate and energy policies, the essential role of renewable hydrogen in meeting these mandates, and the purpose of this Guidebook as a tool to accelerate project development.

Part 2: Hydrogen Project Permitting Process: Details the general local permitting process, distinguishing between ministerial and discretionary review. This section highlights the importance of early coordination with AHJs and communicates the expedited permitting review mandated for hydrogen fueling stations under Senate Bill 1418 (Archuleta, 2024). It also covers community engagement best practices and key state and local code requirements.

Part 3: Types of Hydrogen Projects: Offers specific permitting considerations, regulatory requirements, and technical codes tailored to three distinct hydrogen infrastructure categories: Hydrogen Refueling Stations, Renewable Hydrogen Production Facilities, and Hydrogen Storage and Distribution.

Part 4: Looking Forward: Discusses emerging regulations, future technology trends in the renewable hydrogen sector, and ongoing efforts by GO-Biz and state agencies to enhance permitting efficiency and capacity at the local level.

Part 5: Additional Resources: Contains permitting checklists, a model ordinance for hydrogen fueling stations, and glossary of terms.

For questions, comments, or corrections, please contact the GO-Biz Hydrogen Team at hydrogen@gobiz.ca.gov.

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PART 01: Background

California's Renewable Hydrogen Landscape

California is a recognized leader in climate and energy policy. The state has a legally-binding, economy-wide carbon neutrality target.¹ The California Air Resources Board (CARB) 2022 Scoping Plan serves as the roadmap to reduce greenhouse gas (GHG) emissions and it details California's commitment to protect the environment, grow the economy, and drive innovation by attracting clean energy investment. A key component of the Scoping Plan is to rapidly scale up clean energy resources, including the production, storage, and strategic consumption of renewable hydrogen.

Renewable hydrogen plays a critical role in the state's climate transition. The 2022 Scoping Plan identified the need to add 1,700 times the amount of renewable hydrogen supply by 2045 to meet the state's carbon neutrality goal.² In particular, this hydrogen is needed to help decarbonize California's largest sources of GHG and criteria pollutant emissions: transportation and industrial processes. We cannot meet our state climate, energy, and air quality objectives without a massive shift from carbon-intensive technologies to zero-, low-, and even negative-emission technologies. Renewable hydrogen and fuel cell technologies are essential complements to electrification.

The state's renewable hydrogen scale-up will not only clean the air in communities through helping reach the state's zero-emission vehicle and clean electricity targets. It will also drive hundreds of thousands of jobs. The scale-up of renewable hydrogen production and hydrogen infrastructure is also an important part of the [California Jobs First Initiative](#), the state's long-term economic development strategy. Hydrogen is a key "Strategic Sector" that is part of the state's emerging Clean Economy.³ This initiative empowers 13 economic regions across the state to use bottom-up strategies to drive the creation of good-paying jobs and a stable and resilient economy.

¹ California Governor's Office of Business and Economic Development, *GO-Biz Renewable Energy Permitting Initiative*, (2025, April 22). <https://business.ca.gov/industries/climate-and-clean-energy/>

² California Air Resources Board, *2022 Scoping Plan Documents*. California Air Resources Board. <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>

³ Jobs First. Jobs First. <https://jobsfirst.ca.gov>

In August 2023, Governor Gavin Newsom tasked GO-Biz with developing the statewide Hydrogen Market Development Strategy,⁴ which will lay out how renewable hydrogen can accelerate clean energy deployment and help decarbonize six key economic sectors:

- **Transportation:** Powering vehicles like hydrogen cars, heavy-duty trucks, and transit buses
- **Power:** Providing low- or zero-carbon dispatchable power and long-duration storage
- **Ports:** Powering drayage trucks and cargo-handling equipment
- **Aviation:** Enabling zero-emission regional and short-haul air travel and sustainable aviation fuel
- **Maritime:** Reducing emissions from harbor crafts and ocean-going vessels
- **Agriculture:** Powering heavy-duty off-road vehicles and decarbonizing fertilizer production

Why Permitting Matters

Renewable hydrogen market development in California advances through coordinated phases involving developers, local planners, utilities, and state and federal agencies. The developer manages parallel tracks—site studies, equipment procurement, financing, and utility interconnection—to keep the project on schedule. Meanwhile, the local planner oversees permitting, coordinating reviews across land use, building, fire, and public works departments to ensure code compliance and community safety. In parallel, the developer engages state agencies such as CARB, California Energy Commission (CEC), California Public Utilities Commission (CPUC), and federal agencies when projects affect protected lands or resources. The utility interconnection process, managed through the serving utility, proceeds alongside permitting. Together, these efforts align technical, regulatory, and environmental requirements to bring renewable hydrogen projects from concept to operation.

The local planner plays a pivotal role in directing projects through permitting and maintaining project development timelines. Under local permitting processes, the local planning authority serves as the lead agency, guiding the process through zoning and land use compliance, California Environmental Quality Act (CEQA) review, technical studies, and public engagement. The developer works with the planner to address environmental, safety, and community requirements, while the local planner coordinates input from other authorities and agencies before issuing final approvals.

⁴ California Governor's Office, *Governor Newsom announces new strategy to develop a hydrogen economy of the future*. Governor of California. (2024, June 17). <https://www.gov.ca.gov/2023/08/08/governor-newsom-announces-new-strategy-to-develop-a-hydrogen-economy-of-the-future/>

State Hydrogen Permitting Policies

To date, the state has enacted several laws and regulations to streamline permitting and support the safe buildout of infrastructure needed for a scalable hydrogen economy. Streamlining laws relevant to hydrogen projects are listed below.

Policy Type	Applicable Law(s)	Description
Hydrogen station permit streamlining	SB 1291 (Archuleta, 2022) , SB 1418 (Archuleta, 2024)	Requires every city and county to limit review to health and safety and adopt an administrative (ministerial) approval process for hydrogen fueling stations.
Consolidated permitting process for hydrogen production and judicial streamlining	SB 1420 (Caballero, 2024) , Assembly Bill 205 (Committee on Budget, 2022)	Allows hydrogen production facilities not derived from fossil fuel feedstock and associated onsite storage and processing facilities to opt into the CEC Opt-In Certification Program if a project receives funding from specified state and federal programs. Expands the types of facilities eligible to be certified as an environmental leadership development project by the Governor's Office of Land Use and Climate Innovation's Judicial Streamlining Program .

PART 02: Hydrogen Project Permitting

Overview

This section provides a general overview of the permitting process that hydrogen project developers may encounter. However, the applicability of the information can vary based on the type of hydrogen project. Therefore, it is important to verify if any specific permit streamlining laws apply to your project category as these may override certain requirements:

- **Hydrogen fueling stations** were streamlined for “Administrative/Ministerial” approval with the passage of SB 1418. SB 1418 requires every city and county in California to adopt an ordinance and checklist that creates an expedited, streamlined permitting process for hydrogen fueling stations. See the “[Hydrogen Refueling Stations](#)” section in Part 3 for more information.
- **Hydrogen production** projects may participate in the CEC’s Opt-In Certification Program, enacted via AB 205 (2022) and SB 1420 (2024). This program provides an optional, state-level CEQA permitting pathway that is streamlined for a 270-day environmental review.

Please visit “[Part 3: Types of Hydrogen Projects](#)” for more information related to specific project types including hydrogen fueling stations, production facilities, and storage and distribution infrastructure. hydrogen fueling stations, production facilities, and storage and distribution infrastructure.

Development advances through coordinated phases involving developers, local planners, utilities, and state and federal agencies. The permitting process varies across local planning agencies and regions. Each county, city, tribal government, or economic development department may have specific requirements and workflows.

Overall Permitting Process

The overall local permitting process and code review can be divided into three main phases,⁵ each of which are described in greater detail in this section:

1. Pre-Permitting
 1. Siting
 2. Pre-Application Coordination
2. Permit Application
 1. Local Permitting Authority Review and Decision
 2. Environmental Review
 3. Community Engagement and Benefits
 4. Other Permitting Process Support
3. Permit Issue and Approval
 1. Construction, Fire Inspection and Commissioning Permits
 2. Operational Permits

* Not every step is applicable to every type of hydrogen project. Please refer to the appropriate project type section in Part 3 for more specific information.

Hydrogen Project Permitting Processes

This section details California's local land use permitting process for hydrogen projects from both the planner and developer perspective. It highlights the involvement of other AHJs and the coordination required across multiple stakeholders. By outlining the process stages, this framework illustrates where delays commonly occur. Note that not every step is applicable to every type of hydrogen project. For example, hydrogen fueling stations are eligible for ministerial review. Project developers should refer to the appropriate section based on their project type in Part 3 for more specific information.

Pre-Permitting

In the pre-permitting phase, developers evaluate sites and engage jurisdictions to introduce potential projects. Planners and developers use early meetings to clarify zoning and regulatory requirements, outline review processes, and flag potential environmental or community concerns. This coordination helps developers refine siting decisions, anticipate permitting risks, and strengthen investor confidence in the project.

This phase includes confirming land use controls with local planners to ensure the project aligns with local regulations. Key developer activities include screening the site, reviewing the property title, coordinating with the planner, and performing a desktop study to identify constraints and

⁵ Not every step is applicable to every type of hydrogen project. Please refer to the appropriate project type section in Part 3 for more specific information.

decide whether to proceed with the project. Developers screen potential sites using various information sources including city or county websites, zoning maps, local ordinances, and land use plans. Having accessible zoning maps and other online permitting resources helps developers efficiently understand applicable local requirements.

The [CEC land use screening](#) data helps identify viable locations for clean energy projects. This data helps avoid critical habitats, agricultural preserves, floodplains, wetlands, high fire risk zones, and cultural resource zones. Use of this data helps support California's energy planning goals, meet CEQA/National Environmental Protection Act (NEPA) requirements, and streamline approvals aligned with transmission and policy needs.

Developers will familiarize themselves with local ordinances, focusing on sections like "Environment" or "Development Regulations." Local planners can help navigate these codes, clarify interpretations, and advise on requirements impacting site feasibility relevant to clean energy projects by tagging or cross-referencing these specific code sections.

Developers will also check for consistency with the local jurisdiction's General Plan (typically at county and/or city level) and any applicable Specific Plans, as these documents outline long-term goals and land use policies that guide development. Inconsistencies can delay projects or require discretionary approvals. Local General Plans often control growth or preserve resources, impacting project suitability.

Key local requirements impacting hydrogen projects may include:

- Noise limits for equipment (e.g. inverters and cooling systems)
- Height restrictions on panels, fencing, or substation equipment
- Setbacks from property lines, roads, or sensitive areas
- Glare, aesthetic, or view corridor protections
- Fire safety standards and emergency access for hydrogen storage and fueling

Considering zoning, land uses, and adjacent areas early helps developers select appropriate sites and engage effectively with local authorities. Unless the project is a hydrogen fueling station, an AHJ cannot permit a hydrogen project without proper zoning approval.⁶ In California, local jurisdictions are responsible for writing or adopting their own zoning ordinances. Applicants should refer to a community's General Plan to help make an initial zoning compatibility assessment. In some cases, a location may be covered by a Specific Plan, which provides a more nuanced and detailed land-use description.

Steps for zoning and land use review for non-station hydrogen projects include:

⁶ Hydrogen fueling stations are exempt from this specific restriction but must still comply with applicable zoning regulations outlined in SB 1418.

- Review of proposed projects for consistency with General or Specific Plans.
- Check for project zoning. If zoning is favorable, obtain development permits (e.g. building or construction permits) If not, obtain variance, re-zoning, conditional use permit (CUP), or special use permit (SUP). Conducting a CEQA review may be required.
- Hold pre-application meetings with planning departments.
- Participate in public meetings to understand and discuss local considerations.

Rezoning

In some cases, such as for hydrogen production projects, a site may need to be re-zoned by the relevant city or county. The need for rezoning can be identified through pre-application meetings with the AHJ. This process requires public meetings by the local planning commission, city council, or county board of supervisors. The council or board is not obligated to approve requests for rezoning and, except in charter cities, must deny such requests when the proposed zone conflicts with the General Plan. If a site must be re-zoned, some jurisdictions may choose to complete the rezoning process simultaneously with the CEQA Environmental Impact Report (EIR).

California Building Standards Code Requirements

Code regulations are developed and implemented to provide for the safety of people and property, as well as minimize the environmental impacts associated with project development. The California Building Standards Code provides uniform, minimum code requirements for buildings throughout the state. These requirements are contained in Title 24 of the California Code of Regulations (CCR).

The CCR is divided into 28 separate titles based on subject matter or state agency authority. Title 24 is reserved for state regulations that govern the design and construction of buildings, associated facilities, and equipment. These regulations are also known as the “California Building Standards Code.”

Though Title 24 applies to all building occupancies and related features and equipment throughout the state, some buildings are regulated at the federal level (e.g. military bases). Title 24 contains requirements for a building’s structural, mechanical, electrical, and plumbing systems, in addition to measures for energy conservation, sustainable construction, maintenance, fire and life safety, and accessibility.

Several parts of Title 24 directly relate to hydrogen projects such as:

- California Building Code, Part 2, Title 24
- California Electrical Code, Part 3, Title 24
- California Mechanical Code, Part 4, Title 24
- California Energy Code, Part 6, Title 24
- California Fire Code, Part 9, Title 24

State regulations should not be confused with state laws enacted through the legislative process. State regulations are adopted by state agencies to implement, clarify, and specify requirements of state law. The California Building Standards Commission and other state agencies (both

adopting and proposing) review the codes and update Title 24 as appropriate. Title 24 is updated every three years or, to a lesser degree, during an intervening code adoption cycle. The latest edition of the California Building Code was published July 1, 2025, with an effective date of January 1, 2026.⁷

The California Building Code gives authority to each AHJ's Chief Building Official to be the final authority on the enforcement and code interpretation in their jurisdiction. Previous experiences have shown that code requests can vary widely with different interpretations from one AHJ to another. Code interpretations can be requested from the Office of the State Fire Marshal's (OSFM) Code Interpretations Committee or from the Standards Development Organization that the standard originated from (NFPA, for example).^{8,9}

The intent of this Hydrogen Permitting Guidebook is to provide consistent application of these Title 24 requirements throughout the state as they relate to hydrogen projects and to support compliance with SB 1418 for projects that qualify. This Guidebook is not intended to create, explicitly or implicitly, any new requirements. Updated information regarding new code requirements, as well as the code updating process, is available on the Department of General Services [website](#).

Utility Coordination

Available electrical capacity will vary by project location, influencing project timelines and feasibility. Early utility outreach is crucial to ensure developers understand if grid upgrades may be needed and the time it may take for those to be completed.

Framework for Utility Coordination

In California, Investor-Owned Utilities (IOU) and Publicly Owned Utilities (POU) are responsible for the distribution and transmission systems located within their respective service territories and in turn, service planning requests and the energization of hydrogen project sites.

To accelerate the process for customers requesting new or upgraded electrical service from California's three large electrical IOUs, the CPUC approved an eight-step energization framework in September 2024.¹⁰ This framework establishes standardized targets and timelines that begin once a customer submits an energization request through the appropriate IOU service-planning portal. Its purpose is to promote early coordination between customers and utilities to better align project schedules.

⁷ Department of General Services, (2025) *Building Standards Commission*. <https://www.dgs.ca.gov/BSC>

⁸ Code Interpretations. (n.d.). *State Fire Marshal's Office Established the Code Interpretations*. <https://osfm.fire.ca.gov/what-we-do/code-development-and-analysis/code-interpretations>

⁹ NFPA. *Technical Questions Service*. (n.d.). <https://www.nfpa.org/membership/member-benefits/technical-questions>

¹⁰ California Public Utilities Commission, *Decision establishing target energization time periods and procedure for customers to report energization delays*. (2024) (Decision 24-09-020).

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M540/K806/540806654.PDF>. pg. 24-30

Under the framework, each customer is assigned a primary point of contact at all stages of the energization process to provide guidance and milestone updates. The eight-step framework for each IOU includes the following, with steps 2, 4, and 6-8 falling under the IOU's control.

1. **Customer Intake:** Customer submits energization request via the applicable IOU portal and the IOU educates the customer on application requirements. The IOU reviews the final application and informs the customer about approval or rejection within an average of 10 business days and a maximum of 45 business days. The energization clock starts once the IOU notifies the customer that its application is deemed complete.
2. **Engineering and Design:** The IOU completes field visit(s), engineering study, creates project design and determines project cost.
3. **Customer Dependencies:** Customer obtains necessary permits, secures easements, signs contracts, pays necessary fees, and receives documents any other required third-party approvals.
4. **Utility Dependencies:** The IOU submits documentation for permits and easements to relevant third parties and completes other required IOU approvals (Note: IOU's do not control the timing of third-party processing of permit applications and easement requests).
5. **Customer Site Readiness:** Customer requests a pre-construction meeting and inspection from the IOU.
6. **Utility Site Readiness:** The IOU completes pre-construction meetings and inspections.
7. **Construction:** The IOU schedules and completes electrical construction (including traffic control and scheduling outages as applicable).
8. **Service Energization Provided to Customer:** All final inspections are scheduled, and if performed by the IOU, completed; the site is "energized," allowing the customer to start receiving service.

To support timely project advancement, customers must take several framework actions to enable efficient coordination with the IOUs.

- **Initial Engagement:** Customers should initiate contact with their IOU early in the project planning process. This includes providing all necessary information through the appropriate IOU service planning portal.
- **Familiarity with Process and Timelines:** Customers should review the CPUC's eight energization steps, including who is responsible for activities within each step and the specific timelines for utility-controlled steps established by the Commission.¹¹
- **Ongoing Communication:** Customers should maintain communication with their designated IOU point of contact regarding questions, clarifications, or changes to project scope or schedule. Timely updates help ensure project milestones remain aligned.
- **Providing Necessary Information:** To avoid delays, customers must promptly obtain and submit all necessary permits, easements, agreements, payments, and third-party

¹¹ California Public Utilities Commission, *Decision establishing target energization time periods and procedure for customers to report energization delays*. (2024) (decision 24-09-020)

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M540/K806/540806654.PDF>

approvals. Note: Failure to provide required documentation will pause project advancement until all outstanding items (not in the IOUs control) are received.

- **Monitoring Project Status:** The IOU point of contact will provide regular updates on project progress. Once available, customers will also be able to track their project status via the IOU's online portal, including notifications when additional information or resubmittals are required.

Getting Started:

- **Pacific Gas & Electric:** [Project Resources](#) and [Services Guides](#)
- **Southern California Edison:** [Project Resources](#)
- **San Diego Gas & Electric:** [Project Resources](#)

While the IOUs will manage most service planning requests statewide, **Publicly Owned Utilities (POUs)** also play a critical role in responding to customer energization needs. POUs are not regulated by the CPUC and are therefore not required to follow the eight-step energization framework or IOU timelines previously noted. However, POUs are responsible for establishing and communicating their own service planning processes and timelines to customers.

- California Energy Commission: [Electric Utility Service Areas: IOU & POU Map](#)

The largest POUs in California include Los Angeles Department of Water and Power (LADWP) and Sacramento Municipal Utility District (SMUD); there are currently 37 total POUs operating throughout California.¹²

- LADWP's [Find The Right Person](#) tool allows hydrogen project developer to initiate a new electric service request¹³ and connect with the appropriate Electric Service Planning representative. Developers are responsible for maintaining communication with LADWP and for securing all required permits and final electrical approval from the Los Angeles Department of Building and Safety.
- SMUD's [Design & Construction Services team](#) (DCS) manages all new or upgraded service requests. Developers can begin coordination through the [Find My Advisor](#) page, which connects project teams with a Strategic Account Advisor for preliminary guidance and support with the DCS application. Those who prefer a self-serve approach may go directly to the DCS application.

SMUD serves the City of Sacramento as well as several surrounding several cities and counties.¹⁴ Depending on the project location, the permitting AHJ will vary. Developers should consult the [appropriate AHJ](#) prior to submitting a project application to SMUD.¹⁵

¹² California Treasurer's Office. *Publicly Owned Utilities (POUs) in California*. <https://www.treasurer.ca.gov/caeatfa/cheef/reel/resources/2025-06-13-list-of-POUs.pdf>

¹³ LADWP. *Guide to Electric Service*. Guide to Electric Service 3.12.24.pdf

¹⁴ SMUD. *Our Service Area*. <https://www.smud.org/corporate/about-us/SMUDs-Territory-Map>

¹⁵ SMUD. *Jurisdiction Contacts*. <https://www.smud.org/Business-Solutions-and-Rebates/Design-and-Construction-Services/Meter-and-Service/jurisdiction-contacts>

Please note, hydrogen project developers installing onsite generation and/or a battery energy storage system, whether in IOU or POU service territory, must complete the utility's interconnection process, regardless of whether the system will export power.

Site Accessibility and Existing Infrastructure

Project complexity, costs, and development timelines will be influenced by site accessibility, the presence of existing roads and utility grid infrastructure. Rural sites with undisturbed environments, critical habitats, or migration corridors also pose design and construction challenges, along with permitting and compliance concerns. Protected species and habitats need careful consideration in urban areas as well. The developer needs to weigh multiple site attribute criteria to locate optimal project parcels.

Community Stakeholders

Developers should consider social factors such as proximity to residences or tribal lands and the local political climate. Residents may oppose projects near homes or based on aesthetic or other impacts. Local economic dependence on fossil fuels or concerns about environmental impacts or land use changes can also affect project acceptance. It is important for developers to engage with the community early in the planning and development process to provide project information and understand community needs and concerns so these can be addressed as the project is implemented.

Title Review and Preliminary Environmental Desktop Study

Developers can review property titles for easements, covenants, or restrictions that may limit or constrain development potential. They can also use online databases and maps to identify potential environmental constraints. Sources include:

- [National Wetlands Inventory](#)
- U.S. Fish and Wildlife Service [Information for Planning and Consultation](#)
- U.S. Department of Agriculture [Web Soil Survey](#)
- FEMA [Flood Map Service Center](#)
- California Office of the State Fire Marshal [Fire Hazard Severity Zones](#)
- California Department of Fish and Wildlife (CDFW) [California Natural Diversity Database](#) and other applicable state natural resource databases
- California Environmental Protection Agency Cortese List (hazardous waste sites).

Ministerial and Discretionary Permits

A permit for a project may be issued on a ministerial or discretionary basis. Ministerial permits (i.e., by-right, permit by rule, non-discretionary) are automatically issued if an application meets

objective, pre-defined standards. With the passage of SB 1418, hydrogen fueling stations must be approved as a ministerial permit, in specified scenarios. Discretionary permits (i.e., conditional use permit, special use permit) are granted by a decision-making body (i.e., city staff, planning commission, city council) and require subjective review in addition to rules compliance.

Developers will also seek sites where “by-right” zoning is possible for hydrogen projects—such as a production facility in an existing heavy industrial zone—which allows projects to proceed without discretionary reviews or public hearings. In instances where localities use CUP instead of by-right zoning, developers may assess the ability to meet all conditional standards upfront to minimize project risk and create more certainty. A CUP defines how a site can be used (e.g., hours of operation, delivery timing, etc.). A variance is a request for a deviation from local zoning code (e.g., eliminating parking spots, exceeding building height limitations). Consideration of a CUP or variance is a discretionary act of the AHJ, and if approved, is generally subject to pertinent conditions of approval and mitigation requirements. CUPs and variances typically involve a public meeting by a board of zoning, the planning commission, or a zoning administrator.

Recommended Pre-Application Outreach for Developers

A city or county planning agency is often the most effective place to first engage a local authority. Ultimately, the planning agency will confirm if a project qualifies for a ministerial permit or if a discretionary permit is required. In the discretionary case, the planning agency will determine if a project meets zoning requirements, complies with the CEQA,¹⁶ and fits within the jurisdiction’s General Plan. This discretionary pathway includes considering impacts to parking, aesthetics, on-site circulation, and traffic flow. Planning departments will connect applicants with other relevant departments as appropriate. During this phase, community outreach is also important. This will be more crucial in some areas than others, and it is important for developers to understand community dynamics when developing an outreach plan. Planning departments can often provide insight into the community’s willingness for or resistance to development and other potential concerns specific to the communities they represent.

Above all else, two of the most important steps in the hydrogen development process occur during the Pre-Application Outreach step, before a permit application is submitted:

1. **Secure site control.** Site control refers to the right to develop, construct, operate, and maintain the land or facility such as through a lease agreement, escrow agreement, etc. Seamless communication between the developer, site owner, and site operator is vital in securing the project site.¹⁷ Site owners and operators must be fully committed to the

¹⁶ If on undeveloped land, CEQA will likely apply per AHJ lens of health and safety

¹⁷ In some cases, the site owner and site operator are the same entity, in other cases they are separate. Additionally, there may be other parties involved, such as a property management company, leasing agency, trustee, or other, that can delay or inhibit the process. It is important for station developers to understand the ownership structure of the property and to engage all parties with a stake in decision-making around the use of the site.

proposed project arrangement and remain part of the process to quickly enable any necessary changes along the way.

2. **Establish communication and a permitting pathway.** Most AHJs welcome pre-application meetings with the applicant, key AHJ staff, and the site owner. These meetings can help the applicant ensure their application provides all the information a jurisdiction needs to approve the project, saving time and resources for both the developer and AHJ staff.

Pre-application meetings can uncover potential issues upfront and may be a required criterion for state grant funding. They provide an excellent opportunity to bring AHJs up to speed with the broad effort to deploy hydrogen technologies. These early meetings can open a dialogue about items that could delay the permitting process or lead to the denial of an application, such as:

- Problems with the proposed site—parking, circulation, right-of-way, or clearances;
- Specific city requirements the project must meet to achieve approval like aesthetics or local ordinances, and ways to streamline the approval process;
- Issues with similar projects in the jurisdiction;
- Neighborhood concerns.

The pre-application meeting can take place any time before the permit package is submitted, but earlier in the process is typically better, even if a very rough general arrangement document or aerial photo of the site are the only design documents available. During the pre-application meeting, the applicant should lay out the plan, describe the proposed path forward, learn what permits or approvals will be required to complete the project, and gain a clear understanding of the level of detail each department would like to see in the permit application submittal package.¹⁸

During Pre-Application Outreach, developers and AHJs can leverage a variety of resources to help with community outreach and education, including (but not limited to) vehicle manufacturers, the Hydrogen Fuel Cell Partnership, CEC, CARB, GO-Biz, and local Air Pollution Control or Air Quality Management Districts.

Leveraging the Hydrogen Permitting Network

Local AHJs, hydrogen project developers, and consultants gain hydrogen permitting experience in California and elsewhere every day. Outreach to communities statewide has confirmed that local permit authorities are more than willing to share lessons learned and insights with other permit authorities. Challenges are often similar across jurisdictions and sharing information can significantly improve the overall development process. However, identifying the right person to connect with and beginning a dialogue can take time. With this in mind, the state continues to work with local jurisdictions and professional associations to maintain a list of key contacts that have played a role in the permitting of hydrogen projects. GO-Biz frequently updates a contact list and welcomes the opportunity to provide key connections.

Interested parties should contact GO-Biz at hydrogen@gobiz.ca.gov for more information.

¹⁸ Please refer to the [Checklist for Permitting Hydrogen Fueling Stations](#), located in the “Appendix”, for a guide to the technical aspects of the fueling station project that must be addressed prior to application submittal.

In addition to local contacts, state and federal governments, academia, and nonprofit organizations house considerable knowledge on the hydrogen project permitting process. While they cannot make local decisions, they can help jurisdictions work through potentially complex issues.

Permit Application

During the permit application phase, responsibility shifts substantially from the developer to the AHJ. While developers lead most pre-permitting activities with planners in an advisory role, once an application is submitted, the planner assumes primary responsibility for managing the review process. This includes coordinating across departments, evaluating compliance with land use regulations, facilitating public hearings, and ensuring that conditions of approval are addressed.

Planning Review

Planning review may be a required part of the permitting process that ensures that a proposed project fits within a community's zoning codes, their General Plan, and overall aesthetics. For hydrogen fueling stations that are eligible under SB 1418, planning review is not required. Experience has shown that gaining planning approval can be the most time-consuming portion of the permitting process, underscoring the importance of early engagement with the planning department.

Depending on the community and proposed project site, the planning process can be as simple as checking a box if the chosen location is zoned to accept more fueling or fuel production, or as complex as CEQA analysis coupled with multiple architectural review and planning commission hearings. If an item needs to be heard by any public body, agenda requests should be made as soon as possible, as some communities may have protracted processes and/or a backlog of actions that require a public meeting.

The involvement of the city or county planning agency will vary by jurisdiction and project location. In the simplest case, a proposed project will fit within the parameters designated by a jurisdiction's zoning code and General Plan. However, many sites are geographically constrained and require special consideration from the local planning agency.

Fire Department Review

The timing of a fire department's review of a project varies by jurisdiction and project. Some fire departments will engage early in the process (in parallel with planning review), whereas others will begin their review once a project has Planning Approval. As with all permitting, early engagement is critical, especially if the project is looking to employ alternate means and methods (AMMs), as these can impact the Planning Review and require sign-off by the AHJ.

Hydrogen project designs need to comply with the California Building Code (Part 2) and the California Fire Code (Part 9) of the California Building Standards Code (Title 24), the California Code of Regulations and/or the local amendment of the California Building and Fire Code, and National Fire Protection Association (NFPA 2) Hydrogen Technologies Code. The code ensures proper setback distances, equipment, and mitigation measures for fueling, infrastructure, and storage.

Any hydrogen project design must demonstrate code and standards compliance through plans, notes, and calculations throughout the Planning Review phase. These notes and calculations should clearly identify the applicable codes and demonstrate how the project is proposed to meet the codes. The primary means of resolving any questions relating to code compliance is through the plan check process.¹⁹ However, in some cases, it will make sense to have an application requirement meeting when submitting the application. If an AHJ offers such a meeting, project developers should be prepared to give a complete description of each code section the proposed project addresses and how the project will meet or exceed all code requirements.

California's Office of the State Fire Marshal (OSFM), through the California Building Standards Commission, has adopted by reference to the California Fire Code and California Building Code, the NFPA 2 Hydrogen Technologies Code, starting with the first (2011) edition, and has continued with each subsequent revision/edition. This is additional to NFPA 2 being referenced in the International Fire Code (IFC), which is the model fire code for California and most of the United States. Non-IFC states employ NFPA 1 Fire Code, which also points to NFPA 2, a science-based code that provides fundamental safeguards for the generation, installation, storage, piping, use, and handling of hydrogen in compressed gas or liquid form. It has undergone significant industry examination and engineering peer review through the rigorous NFPA adoption process and is now the primary hydrogen document in NFPA.

Due to differences in the timing of the NFPA 2 code revision cycle and California Building Standards Code adoption cycle, the most recent version of NFPA 2 may not yet be enforceable. However, if a developer wants to apply it to their project, the OSFM regularly issues Information Bulletins (IB) that provide crucial updates and guidance on matters pertinent to California's fire prevention and safety standards. As such, IBs on NFPA 2^{20,21} that recognize these timing gaps provide support that an AHJ may consider the most recent version of NFPA 2 as an AMM, per the California Fire Code or

¹⁹ During the plan check process, the project is reviewed by multiple local agencies to ensure compliance with particular regulations, codes, etc.

²⁰ Office of the State Fire Marshal, (2026). *Information Bulletins*, CalFire, Office of the State Fire Marshal. <https://osfm.fire.ca.gov/resources/information-bulletins>

²¹ Office of the State Fire Marshal, (2023). *2023 Edition of the NFPA 2 Hydrogen Technologies Code*, CalFire, Office of the State Fire Marshal. <https://osfm.fire.ca.gov/resources/information-bulletins>

California Building Standards Code Section 1.11.2.4. Using an AMM is a conversation between the project developer and the AHJ, as it is ultimately the AHJ's decision to accept the AMM.



Fire Approval Tips for Developers

The importance of fire approval, or an identified pathway to fire approval, cannot be overstressed, especially in communities new to hydrogen technologies. While no unsafe hydrogen project would survive the permitting process, the *perceived* risk of hydrogen can be high for those who have not been exposed to the technology. Experience shows that in those cases, fire official engagement gives decision makers the transparency they need to be assured enough to approve a proposed hydrogen project. In general, local fire officials have been very supportive of the state's effort to deploy hydrogen fueling stations and other hydrogen projects once they gain comfort that safety codes and standards exist and that the project complies with them.

Hiring an experienced fire protection engineer

Hiring an experienced fire protection engineer with an understanding of the local AHJ's approach to code application can help minimize the back and forth associated with the project approval process. A fire protection engineer can succinctly communicate compliance with relevant codes and standards, saving fire marshals time and effort.²²

Early AHJ engagement

Some fire department workflows are set up to wait for planning approval prior to reviewing projects. However, given the novelty of hydrogen use in some communities, out-of-order processes may be required to establish the comfort needed to gain planning approval. Conceptual approval or a willingness to engage on a project early can be the difference between a project stalling and gaining planning approval at the first hearing.

Safety system innovation and understanding is evolving as the hydrogen market is developing. Nevertheless, if a new approach is to be considered in a community, resources are available to help ensure appropriate risk mitigation, such as the Hydrogen Safety Panel and associated resources like the Pacific Northwest National Laboratory's Safety Planning Guide for Hydrogen Projects.²³

Building Review

In some jurisdictions, the building department serves as the central clearinghouse for project approval. In others, the building department simply conducts a building plan check once a project has been cleared by the planning department. In either case, building departments review

²² Fire Protection Engineering (2019) *Fire Safety and Hydrogen*, https://www.fireprotectionengineering-digital.com/fireprotectionengineering/2019_q4/MobilePagedReplica.action?pm=2&folio=42#pg44

²³ Hydrogen Safety Panel. (2025). *Safety Planning Guide for hydrogen projects*. In United States Department of Energy & Battelle Memorial Institute, https://h2tools.org/sites/default/files/Safety_Planning_for_Hydrogen_and_Fuel_Cell_Projects.pdf

complete, fully detailed plans to ensure that projects comply with applicable requirements of the California Building Standards Code (Title 24) and local ordinances. These detailed plans include structural, mechanical, and electrical information.

Electrical approval is one of the key milestones. An electrical engineer will check the plans against the California Electrical Code (Title 24, Part 3), California Energy Code (Title 24, Part 6), and local ordinances, which may be more stringent than the California Building Standards Code, Title 24.²⁴ These codes ensure proper electrical installations, efficiency measures, and load management.

The building department will use its interpretation of the California Building Standards Code to ensure a project is set up for safe installation and operation, with a focus on safety, structural design, and layout. It may issue separate permits for demolition, site grading, and construction. Final construction plans must incorporate all of the Planning Agency's conditions of approval. When the project is approved, the AHJ will issue approval to build.



Successful Permit Submittal Tips for Developers

Balance Detail with Simplicity

Project developers should note that providing too much information could inundate the plan-check process. The ideal permit application demonstrates department specific compliance with all relevant codes, nothing less and nothing more. Each department's plan checker (building, electrical, fire, etc.) should be able to quickly assess what section(s) they need to review. They should not have to hunt through pages of calculations to find the relevant sections. Depending on the AHJ, the best approach may include packages tailored to each department, or one set of clearly indexed plans. This can be determined during the pre-application outreach meeting.

Provide Full and Complete Responses

As the AHJ reviews the application, staff will often provide feedback including questions or comments and definition of changes needed for approval. Project developers should receive full and complete comments from all agencies of the AHJ. Adjustments to the permit application may be required based on staff input. Applicants should clearly and succinctly address all issues raised by the AHJ and resubmit the modified package as soon as possible.

Nationally Recognized Testing Laboratory (NRTL) Approval

In an established market, project designs can incorporate "off-the-shelf" NRTL-certified components and designs, which simplifies the engineering review process. However, as the hydrogen market is still evolving, NRTL certified components may not exist for early market products. If the project uses components that do not yet have an NRTL certification, the onus falls on the project developer to provide information to AHJs with technical data to verify the component's safety. Leveraging other standards such as those set by the International

²⁴ Local ordinances can often be found on an AHJ's website and should be confirmed at the pre-submittal meeting.

Organization for Standardization (ISO) and Underwriters Laboratories (UL) can also simplify the approval process. As the market expands, more certified components or systems will become available for hydrogen project developers, simplifying infrastructure approval and deployment.

Maintain Consistency in the Inspection Process

There is potential for misalignment between plan check and equipment inspection, as plan checkers and inspectors are often different people. These discrepancies can arise from miscommunication at a variety of process points. To the extent possible, both AHJs and station developers should actively work to ensure inspection requirements are fully understood. This will help projects move from construction to operation as quickly as possible.

Utilize Third Party Resources and Creative Methods

If AHJ staff have questions or concerns regarding a project, a number of third-party resources are available to share insights, free of charge. For example, the Hydrogen Fuel Cell Partnership serves as an information clearinghouse for hydrogen transportation that can connect project participants to industry and government experts, in addition to knowledgeable staff. GO-Biz also offers complimentary permit assistance support for specific projects and proactive permitting outreach. Additionally, GO-Biz offers assistance to entities seeking to connect with California state agencies—such as CARB, Caltrans, or the CEC—on hydrogen permitting and related matters. Please reach out to hydrogen@gobiz.ca.gov for more information. Lastly, developers should consider additional methods to communicate effectively. As an example, an on-site visit to walk through the marked-out plan may help the AHJ to visualize beyond the on-paper plans.

Environmental Review

Developers begin environmental review during site screening by commissioning technical studies on potential impacts to ecosystems, wildlife, water, cultural resources, and nearby communities. They prepare documentation, propose mitigation strategies, and adjust project designs based on findings.

California Environmental Quality Act (CEQA)

[CEQA](#) applies to discretionary projects, like hydrogen production facilities, and informs government decisionmakers and the public about potential environmental effects of proposed projects. Local planners often serve as the Lead Agency under CEQA and are responsible for managing the review process, determining the level of CEQA analysis required, coordinating with other agencies, evaluating the developer's studies, and ensuring that public input and mitigation measures are incorporated into permit conditions.

However, the path to compliance varies depending on the project type:

- **Fueling stations:** Under SB 1418, application approval must be via a nondiscretionary permit, under specified conditions, and therefore generally exempt from CEQA. However, projects proposed on undeveloped and undisturbed land will likely trigger CEQA review.

- **Production facilities:** Hydrogen projects using non-fossil-derived feedstock should evaluate the CEC Opt-In Certification program, which provides consolidated CEQA permitting with a guaranteed 270-day window.

Minor projects may be exempt from CEQA if a “Categorical Exemption” (CE) applies and no significant environmental impact is expected. If an Initial Study shows less than significant or mitigable impacts, a Negative Declaration (ND) or Mitigated Negative Declaration (MND) may be issued.

Projects with potential significant impacts require an EIR. This detailed report examines effects on the environment, cultural resources, transportation, and human health, presenting mitigation options. The EIR informs decision makers and allows public input.

National Environmental Policy Act (NEPA)

[NEPA](#) is a federal law that may apply to California projects with federal funding, on federal land, or requiring federal permits. A federal Lead Agency oversees NEPA projects. NEPA assessments are similar to CEQA but use different terms and requirements. Projects with no significant effect may qualify for a “Categorical Exclusion” (CATEX). If impacts are uncertain or moderate, an Environmental Assessment (EA) is required. A Finding of No Significant Impact (FONSI) may follow an EA. Projects likely to have significant impacts require an Environmental Impact Statement (EIS). The EIS leads to a Record of Decision (ROD) by the Lead Agency, detailing the chosen alternative, rationale, and mitigation measures.

Table 1 summarizes the different terms used in CEQA and NEPA environmental reviews. Early coordination with the CEQA or NEPA Lead Agency is vital for determining the necessary level of environmental review. Environmental field work and/or technical studies and reports may be needed to support CEQA or NEPA reviews or natural resource permits (e.g., biological resources report, wetland delineation, cultural resources report).

Table 1. CEQA and NEPA Terminology

CEQA	NEPA
Categorical Exemption – Used when a project is statutorily or categorically exempt.	Categorical Exclusion – Used when a project is expected to have no significant impact.
Initial Study – Determines whether a project may have significant impacts. If it does not, a Negative Declaration or Mitigated Negative Declaration may be adopted.	Environmental Assessment – Determines whether a project may have significant impacts. If it does not, a Finding of No Significant Impact is adopted.
Environmental Impact Report (EIR) – Required when a project may have significant impacts. Must consider alternatives, provide mitigation, and include public input.	Environmental Impact Statement (EIS) – Required when significant environmental impacts are likely. Must consider alternatives, provide mitigations, and involve the public.
Findings – Notice of Exemption, Notice of Determination, or Notice of Completion.	Findings – Finding of No Significant Impact, or, if EIS is prepared, Record of Decision.

Review periods and certification processes for environmental documentation can be lengthy. The process varies based on complexity and environmental impact and may span months or years. Time may be required for technical studies and analysis to identify and mitigate potential impacts, which can be further delayed by understaffed agencies or incomplete permits that require rework. Slow environmental reviews can lead to extended and unpredictable environmental clearance timelines and outcomes.

Natural Resource Permits

Natural resource permits may be required to comply with federal, state, and local environmental laws. These may include:

Waters and Wetlands

- U.S. Army Corps of Engineers – Clean Water Act (CWA) Section 404 permit
- State Water Resources Control Board – CWA Section 401 water quality certification
- CDFW Section 1600 of the Fish and Game Code – lake or streambed alteration agreement

Species

- State
 - CDFW Incidental Take Permit (ITP) – California Endangered Species Act (ESA) listed species
- Federal
 - USFWS Biological Opinion – Federal ESA listed species (Section 7 ESA)

- USFWS Eagle ITP and Migratory Bird ITP – Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act listed species

Air Quality

- Regional Air Districts – Construction and Operational permits
- Regional Air Districts – Fugitive Dust Control Plans (Rule 403)

Developers should consider environmental concerns by avoiding sensitive areas like wetlands, habitats, and floodplains (even if they are buildable), mitigate impacts by designing wildlife corridors or funding habitat conservation (“mitigation banking”), plan early for CEQA requirements, and conduct wildlife studies, geotechnical evaluations, cultural, or archaeological site surveys and other applicable studies.

Federal and State Law Compliance and Approvals

Clean energy projects follow federal and state laws on environmental, energy, land use, wildlife, and safety issues. Projects may also be incentivized by tax credits or renewable certificates. Federal laws relevant to clean energy projects include:

- **Resource Conservation and Recovery Act (RCRA)** – The EPA uses RCRA to regulate the storage, handling, and disposal of hazardous waste. Projects involving materials like batteries or fuel must comply with these rules.
- **Emergency Planning and Community Right-to-Know Act** – Facilities storing hazardous substances above threshold limits must report inventories to local emergency responders for safety planning.
- **Toxic Substances Control Act (TSCA)** - Mandates that chemicals used, such as catalysts or byproducts, meet federal safety and usage standards.

Possible federal agency involvement includes:

- **Federal Aviation Administration** – Studies may be required to evaluate potential hazards to aviation.
- **Federal Energy Regulatory Commission** – FERC oversees projects that are connected to the interstate transmission system or engaged in wholesale energy markets.

Possible state agency involvement includes:

- **California Department of Transportation** – A Caltrans encroachment permit is required when a project involves work within a state highway right-of-way or when oversized loads (e.g., wind turbine components) are transported on state roads.
- **California Public Utilities Commission** – The CPUC oversees transmission lines and manages how projects connect to the grid.
- **California Energy Commission** – The CEC approves large energy projects and can streamline permits for clean energy projects.

- **California Independent System Operator** – CAISO oversees grid interconnections for major projects and assesses the system’s capacity to accommodate additional power.
- **California Department of Forestry and Fire Protection** – CAL FIRE reviews hydrogen storage projects to ensure they meet state fire-safety standards.
- **California Department of Resources Recycling and Recovery** – CalRecycle reviews feedstock-to-fuel pathway eligibility for biogenic hydrogen projects.
- **California Geologic Energy Management Division (CalGEM)** – CalGEM regulates drilling, operation, and closure of resource wells such for geologic hydrogen projects.

Community Engagement

Developers may engage early with the public to highlight the positive economic and environmental impacts of new clean energy projects in communities to build support, meet permitting requirements, and foster long-term collaborative relationships. They may seek to facilitate informational meetings, develop educational resources, and address community concerns with fact-based information on the specific clean energy technology, their benefits, and the risks. Industry-funded sources can be perceived as biased compared to scientific, academic, or other credible third-party studies. Community opposition can derail projects if public concerns have not been addressed. It is important for communities to be brought in early at the projects’ onset, when feasible.

Clearly articulated benefits can improve public understanding, reduce permitting risks, and foster community alignment. Local planners should also carefully assess the cumulative contributions made to the locality in terms of permitting fees and other costs, such that developers do not feel disincentivized to pursue clean energy projects due to high costs. These benefits should be weighed in their totality and strike a balance that supports community goals, project viability, and state policy.

Hydrogen projects may provide a variety of benefits to local communities, including:

Potential Economic Benefits

- Payment of locality fees and costs
- Local job creation and local labor hiring commitments
- Quantified tax revenue to localities
- Community Benefit Agreements (CBAs) or voluntary payments to local programs
- Support for local business
- Support for local infrastructure (road upgrades, fire department and emergency services)
- Educational opportunities (scholarships, apprenticeships, energy education, workforce training)
- In-kind commitments that support community goals.

Potential Societal and Environmental Benefits

- Grid reliability and stability (particularly during heatwaves or other periods of high electricity demand)

- Long term reduction of energy costs for households, businesses, and other ratepayers
- Reduced reliance on fossil fuels, leading to: Reduced greenhouse gas (GHG) emissions
- Air and water quality improvements
- Land use compatibility options and co-location opportunities (agricultural use under solar arrays, wildlife compatibility)
- Decommissioning and land restoration plans that return land to prior or improved conditions.

Community Outreach and Safety Education

Ultimately, communities will define the success of hydrogen infrastructure and technologies. A thoughtful permitting process will help ensure that hydrogen projects are as safe or safer than conventional fuel infrastructure projects. However, the concept of hydrogen as a transportation fuel or energy carrier remains new to many. A smooth permitting process can hinge on community members being educated and exposed to the technology to build awareness and dispel any misconceptions. Extensive and ongoing outreach to the general public—especially local elected officials, businesses and residents—in the local area has proven to be advantageous for projects in California.

Safety Resources

The state can assist with some outreach to authorities having jurisdiction (code officials, stakeholders, etc.) on hydrogen safety via a request to GO-Biz.²⁵ Visit the [GO-Biz Hydrogen Resources](#) page for more information. Extended resources include the Center for Hydrogen Safety (CHS) which develops and provides a robust education and outreach program—project and community leaders should be aware of these resources and their expertise to help introduce communities to hydrogen technologies and their benefits.

Please visit the [GO-Biz website](#) to learn more about “Aligning Community Interests with Clean Energy Project Development”²⁶

Permit Issue and Approval

Construction, Final Inspection and Commissioning

Discretionary permits are approved following staff review and public hearings, often with conditions to address safety, environmental protection, and community compatibility. Once issued, planners continue coordinating to ensure compliance, while developers secure ministerial building permits,

²⁵ Please contact hydrogen@gobiz.ca.gov for hydrogen safety outreach requests

²⁶ California Governor's Office of Business and Economic Development (2025), GO-Biz Renewable Energy Permitting Initiative. <https://business.ca.gov/industries/climate-and-clean-energy/go-biz-renewable-energy-permitting-initiative/>

complete inspections, and meet ongoing requirements such as reporting or decommissioning assurances.

Developers file for local permits to comply with municipal codes, safety standards, and community planning goals. Approvals typically address structural integrity, electrical systems, fire safety, site access, and hazardous materials. Local fire codes, zoning restrictions, and hazardous materials ordinances may apply, and early coordination is critical where approval pathways are unclear and require case-by-case negotiation.

Construction-related local permits typically include:

- **Building permits** for civil structures such as foundations, dispensers, and equipment enclosures
- **Electrical permits** for medium-voltage cabling, substations, and power electronics
- **Mechanical permits** for heating, cooling, ventilation, or pressurized systems, such as those used in high-pressure hydrogen pipes and compression systems
- **Grading and drainage permits** if the project involves substantial earthmoving
- **Fire permits** covering hydrogen gas detection and emergency shutdown systems
- **Erosion and land disturbance approvals** for disturbances of more than one acre; these include construction general permits and stormwater pollution prevention plans
- **Right-of-way and encroachment agreements**, which allow access or utility placement on public land or allow a project to cross, dig within, or install infrastructure within a public space; they may include local transportation-related approvals from a government entity of the city or county with jurisdiction over the project
- **Local hazardous materials approvals or notifications**, particularly for the storage and handling of bulk hydrogen, battery components, or other regulated substances

Construction can be limited to specific times of year due to wildlife protection during breeding, flowering periods for rare plants, seasonal presence of protected species, grid upgrade windows, or to avoid adverse weather conditions like rain or snow. These restrictions can delay construction projects beyond planned timelines.

In the construction phase, planners will monitor to ensure that the project complies with all conditions of local land use permits (e.g., grading, building, encroachment). They may also coordinate with inspectors (building officials, public works, code enforcement) to confirm adherence to approved plans. Planners will also be involved in community relations to respond to public concerns (e.g., noise, dust, traffic) and coordinate mitigation if required. Additionally, they may also confirm compliance with stormwater pollution plans (SWPPP) and local grading ordinances as part of overall erosion control and stormwater oversight.

Construction Best Practices for Developers

After the AHJ issues the final approval to build, construction can begin. During and at the completion of construction, the project is subject to inspections and final approval by the local authorities. The purpose of inspections is to ensure that project developers build their projects in compliance with the specifications agreed upon in previous phases of the process. Work in progress inspections are strongly recommended to help avoid potentially costly interpretation misunderstandings and help ensure a project begins operation on time. When construction is complete, the project developer will file a notice of completion and begin commissioning.

Inspection processes can vary from jurisdiction to jurisdiction. The local process should be fully understood before commencing construction. Many jurisdictions will require multiple inspections, others a single inspection upon project completion. Either way, inspections should be worked into the project plan and scheduled as soon as possible to avoid long lead times.

Encroachment Permits must be obtained prior to doing any work that may impact a city or county right of way. These permits are typically obtained by the contractor responsible for installing the equipment and generally require a performance security (e.g., cash deposit, performance of bond, letter of credit) to ensure completion of work. Applicants should work with the building department to ensure they are prepared to secure all potential encroachment permits. If work needs to be done on a state highway, an encroachment permit from Caltrans will be required. More information on obtaining an encroachment permit for areas under the State highway rights of way can be found on the [Caltrans website](#).

Project Commissioning

Planners coordinate final inspections, close out permits, issue certificates of occupancy or operational clearances, and verify mitigation measures such as fencing or vegetation buffers.

Evolving and Overlapping Regulations

California's complex and evolving regulations make hydrogen project permitting difficult for both planners and developers. Planners must interpret overlapping rules, while developers face delays and conflicting requirements that can jeopardize financing milestones or construction windows. To reduce uncertainty, developers may pursue parallel applications in different localities or alternative project designs to address shifting codes, community opposition, or environmental restrictions.

California has undertaken permitting reforms at both the local and state level. The CEC's statewide Opt-In Certification process and SB 1418 mandated expedited permitting for hydrogen stations provide developers with an alternative pathway to accelerate reviews when local delays persist. Clear, consistent tools and guidance from local planning departments play a critical role in whether developers choose the Opt-In Certification process or remain within the local permitting pathway.

Localities continue to modernize local processes and employ tools to enable permitting including publishing permitting checklists, using permitting software, creating ministerial (by-right) approval

pathways and pre-zoning land for clean energy. Useful information shared between planning departments and developers includes:

- Transparency on involved agencies and anticipated permits
- Regulatory triggers on permits
- Technical information required to complete applications
- Contact lists of departments/personnel responsible for each application or task
- Permit process flows and agency approval timeframes
- Permit fees

DRAFT

PART 03: Types of Hydrogen Projects

To understand permitting of hydrogen projects, it is important to first understand what hydrogen is, its chemical and physical properties, and the different types of hydrogen projects being developed today. Just as with other fuels, hydrogen has properties that require specific engineering considerations and safety systems. These are called out in various codes and standards and technical documents developed by experts in hydrogen engineering and safety. Permitting officials reference these codes and standards to ensure projects comply with all applicable requirements to protect communities and the environment.

As an example, hydrogen gas is highly buoyant (14x lighter than air) and disperses rapidly, but when mixed with air in certain concentrations, it can be flammable. Therefore, systems are designed to ensure any hydrogen leaks are properly vented and to avoid sources of ignition in enclosed spaces. The information below provides an overview of hydrogen properties. More detailed information is available through organizations such as the [Center for Hydrogen Safety](#), the [H2Tools](#) resource, [Fuel Cells and Hydrogen Energy Association](#), and the [Compressed Gas Association \(CGA\)](#).

Hydrogen projects being developed today include hydrogen refueling stations, hydrogen production facilities, and hydrogen storage and transfer facilities. While these may be subject to different permitting requirements depending on the facility type, location, and size, the fundamental properties of hydrogen will always be a key factor in the design and engineering of these projects and the codes and standards they must meet.

Properties of Hydrogen

Hydrogen is 14 times lighter than air: Hydrogen may rise and diffuse rapidly in its gaseous state, rising at approximately 65 feet per second. This property is known as high buoyancy. High buoyancy can decrease the risk of forming a flammable cloud when in open and well-ventilated spaces. Codes and standards consider the buoyancy and diffusivity of hydrogen in their requirements for storing, transporting, and using hydrogen safely.

Hydrogen is odorless, colorless, and tasteless: Hydrogen gas sensors, which are calibrated to detect hydrogen at levels well below the lower flammability limit of 4% hydrogen in the air, sound an alarm, and ultimately result in a shut-down of a system, are used in enclosures. These hydrogen gas sensors may be used in dispenser cabinets to detect leaks and have been used to meet safety requirements for decades. In comparison, natural gas is also odorless, colorless, and tasteless; in this case, a sulfur-containing odorant, called mercaptan, is typically added to make natural gas detectable by smell. Hydrogen fuel would not work well with odorants because they degrade and damage most fuel cell systems, so other safety measures, like sensors, are used.

Hydrogen flames have low radiant heat: When a pure hydrogen flame ignites, it burns with an invisible or near-invisible flame and produces heat and water vapor. A hydrogen fire radiates significantly less heat compared to a typical hydrocarbon fire; however, the internal flame temperature is significant (4,010 °F).

Hydrogen has a wide flammability range: Hydrogen's flammability range in air (between 4% and 75%) is very wide compared to other fuels such as natural gas (5% to 15%) and gasoline vapor (1.4% to 7.6%), and it can ignite more easily than other fuels. Offsetting this characteristic, hydrogen is lighter than air and disperses rapidly. Compared to other fuels, hydrogen in open air environments may be less likely to reach a combustible mixture.

Hydrogen is non-toxic and non-poisonous: Hydrogen cannot contaminate groundwater. It is a gas under normal atmospheric conditions and must be at -423°F to reach liquid state. As such, liquid hydrogen will vaporize very quickly, and gaseous hydrogen does not contribute to atmospheric pollution. Hydrogen does not create harmful fumes when used in a fuel cell; its only 'emission' is pure water. As such, it cannot leave drips, spills, or soil contamination associated with liquid fuels.

Hydrogen has a low risk of asphyxiation: Any non-oxygen gas can cause asphyxiation. Hydrogen's buoyancy and diffusivity make hydrogen difficult to be confined in a space where asphyxiation might occur. For example, hydrogen station fueling occurs in well-ventilated outdoor and indoor areas, just like gasoline fueling.

Keep in mind, no fuel is inherently 'safe'. However, the systems we use are designed with safety at the forefront and to account for a fuel's given properties. Hydrogen safety, codes and standards such as NFPA 2 Hydrogen Technologies Code address these unique properties of hydrogen.

Hydrogen Refueling Stations

Hydrogen refueling stations in California today provide hydrogen to fuel cell passenger cars, trucks, buses, forklifts, locomotives, and more. Those retail and private stations serving the on-road transportation sector are shown on the Hydrogen Fuel Cell Partnership [Station Map](#). Other fueling operations provide fuel for private fleets such as forklift, port logistics, rail, maritime, mining, aviation, etc., and may be found on the U.S. Department of Energy's Alternative Fuels Data Center site.²⁷

The functional components of hydrogen fueling stations are primarily the same, regardless of the dispensing capacity; be it 100 kg/day or 10,000 kg/day. Stations may be designed to make the hydrogen on-site; however it is more likely to be delivered as compressed gas or liquid (cryogenic) by truck (near term) or pipeline (longer term). Currently, hydrogen fueling stations for fuel cell electric vehicles (FCEVs) are mostly integrated into existing fueling station footprints, such as a gasoline and/or diesel, or compressed natural gas station. A station may be constructed as a stand-alone project for applications like forklift refueling. Regardless, the intent is to provide FCEV drivers with an experience they are used to with conventional fuels with respect to fueling, dispenser operation, fill time, and payments. As such, the stations have the familiar look and feel of gasoline and diesel stations with similarly convenient locations to neighborhoods and main transportation corridors.

Technical innovations are happening quickly, with standards development following suit to accommodate novel fueling protocols and station equipment. However, there are some common station components that one will consider in the permitting of a fueling station. All station equipment is behind a wall, away from the customer, save for the dispenser itself that includes the hose-nozzle-breakaway configuration, like for other dispensed fuels.

Hydrogen storage equipment – Hydrogen is typically stored onsite in above ground vessels either as a liquid (cryogenic fluid), as a compressed gas, or both, regardless of what is dispensed to the vehicle. All storage and safety systems are called out in NFPA 2 Hydrogen Technologies Code, and in the cited standards therein.

Compression equipment – if gaseous or cryo-compressed hydrogen are dispensed, compression is needed and will be a part of the equipment in the enclosure, with the proper safety systems and setbacks as defined in the fire code and NFPA 2.

²⁷ Alternative Fuels Data Center: (2026) *Alternative Fueling Station Counts by State*.
https://afdc.energy.gov/stations/states?count=total&include_temporarily_unavailable=false&include_temporarily_unavailable=true&date=

Dispenser – pressurized, gaseous hydrogen is the most commonly dispensed form of hydrogen. However liquid hydrogen and cryo-compressed are being explored for larger applications like heavy-duty trucking. In any case, dispensers will always be a part of the equipment installation associated with a fueling area or island, and it includes safety mechanisms common to conventional fueling, like bollards and a hose breakaway.

Other equipment may or may not be present based on the type of station and the form of hydrogen being dispensed; it is possible for a ‘multi-modal’ station or mixed-use station to have all of this equipment and be able to serve various vehicle classes.

Chiller or heat exchanger – high-pressure gaseous hydrogen ideally requires pre-cooling to accommodate quick refueling for passenger vehicles and especially for vehicles with large on-board fuel storage systems. To pre-cool the gas, equipment such as a chiller is required. The fastest fueling times are attainable with gaseous hydrogen that is pre-cooled to around -40°C per the industry standard fueling protocols.^{28,29}

The timeline for developing a hydrogen fueling station will vary and can take longer for the first station in a community. California’s hydrogen market development benefits from an expedited rollout of fueling stations across the state. The California State Legislature views the efficiency of the permit review process as a matter of statewide concern and has therefore mandated that local agencies refrain from creating unreasonable barriers to infrastructure buildout.

This section of the Guidebook is designed to aid AHJs and station developers in the research required to permit a hydrogen station. It includes tools to facilitate permitting at the local level.

SB 1418 Compliance: Mandated Expedited Permitting for Hydrogen–Fueling Stations

SB 1418 (Archuleta, 2024) requires jurisdictions to create an expedited permitting ordinance and checklist for hydrogen fueling stations and limits their review to health and safety requirements. The bill, effective January 1, 2025, amends Government Code Section 65850.7 to require all cities, and counties, in California to adopt ordinances that establish an expedited and streamlined permitting process for qualifying hydrogen-fueling stations. SB 1418 applies to all hydrogen fueling stations located on a parcel that is either zoned for industrial or commercial development, not containing any residential units, or was previously developed with a public gas station.

28 SAE International. *Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles*, https://www.sae.org/standards/j2601_202005-fueling-protocols-light-duty-gaseous-hydrogen-surface-vehicles

29 SAE International Advancing mobility knowledge and solutions. (2026). Sae.org. https://www.sae.org/standards/j26015_202502-high-flow-prescriptive-fueling-protocols-gaseous-hydrogen-powered-medium-heavy-duty-vehicles

GO-Biz works with local governments to help them develop their expedited permitting process—more information can be found on [GO-Biz's Hydrogen Readiness webpage](#).

Key Provisions of SB 1418 include:

- **Applicability** – The expedited process applies to hydrogen-fueling stations located on parcels zoned for industrial or commercial use (with no residential units on the parcel) or on parcels previously developed as service stations (defined as establishments that sell gasoline or other motor vehicle fuels to the public).
- **Scope of Review** – Permitting reviews are limited solely to health and safety requirements under applicable local, state, and federal laws. Jurisdictions may not impose additional conditions unrelated to health and safety.
- **Approval Process** – Eligible stations must receive administrative approval through a building permit or similar nondiscretionary permit. A use permit may only be required if there is substantial evidence in the record of a specific adverse impact on public health or safety that cannot be mitigated without rendering the project unaffordable.
- **Checklist and Ordinance Requirements** – Jurisdictions must adopt a checklist of all requirements for expedited review, including compliance with industry standards (e.g., SAE, NFPA 2) and state regulations from agencies such as the CARB, CEC, and the California Department of Food and Agriculture's (CDFA) Division of Measurement Standards (DMS) regarding safety, reliability, weights, and measures.
- **Compliance Deadlines** – Jurisdictions with populations of 250,000 or more were to adopt ordinances by September 30, 2025. Smaller jurisdictions have until September 30, 2028.
- **Development Collaboration** – When developing the ordinance, jurisdictions are encouraged to consult with local fire departments or districts and electric utility directors to ensure alignment with safety codes and infrastructure needs.
- **Repeal Date** – Effective January 1, 2030, all provisions of the bill are repealed except for the requirement directing local jurisdictions installing EV charging stations to reference the current version of the "Electric Vehicle Charging Station Permitting Guidebook."

Site Considerations Tips for Station Developers

Parking

Parking spaces fall into one of two categories: general parking and disabled access parking. Both are important for the local planning process and can significantly impact station design. General parking requirements are typically governed by the jurisdiction's General Plan and zoning requirements. Disabled access spots are determined by the local jurisdiction's interpretation of the ADA, which prohibits discrimination against people with disabilities in employment, transportation, public accommodation, communications, and governmental activities. Care should be taken to incorporate parking requirements and opportunities into the station design as early as possible. If a site has flexibility, AHJs can help the process by informing the station developer, often resulting in a better design overall.

Traffic Flow and Site Circulation

Adequate traffic flow and circulation is fundamental to the planning approval and long-term viability of the site. Early engagement and a clear understanding of a site's dynamics and user behavior can help facilitate productive discussions with AHJ staff and planning commissions. This is especially true if the proposed project can improve traffic flow on-site. Station developers should also consider how flow and circulation patterns may change with an increased influx of vehicles. Heavily utilized hydrogen stations can result in long fueling queues with cars waiting in line for considerable lengths of time. Appropriately sizing the station capacity and the number of fueling positions to meet anticipated demand can help. For delivered hydrogen-based stations, delivery schedules are likely to be governed by site dynamics and property owner wishes. However, local ordinances, such as limiting nighttime deliveries, may also impact the schedule. Any delivery restrictions should be understood early in the process so that challenges can be addressed.

Aesthetics

Station aesthetics are no longer legally allowed to be a part of the station approval process. However, designing a station to meet the local aesthetics can save time, money and help gain community support.³⁰ A station should be designed to fit the visual landscape as much as possible and should be compliant with the AHJ's published design standards. Hiring a local architect who understands the localities' nuances can help seamlessly integrate the station into the existing visual landscape and minimize potential back and forth between the developer and AHJ. Overall flexibility and a willingness to work with the AHJ on design and local preferences can help the process go smoothly.

General Plan Considerations

Some General Plans specifically state that fueling stations can dispense gasoline or diesel fuel. Communities that want to attract hydrogen fueling stations should ensure their General Plans recognize all fuels, not just gasoline and diesel. A General Plan may also refer to hydrogen dispensing as a way to meet local sustainability goals and clean air standards.

Understanding Site Ownership

Fully understanding the ownership structure, lot lines, easements, and any deed restrictions on the proposed property can save time throughout the permitting process. If the site has multiple owners, all owners should agree upon, or have an agreement on, the proposed general arrangement drawings before initiating the design process. If a site has multiple lots tied together, the city or county may require a covenant to tie the properties together. Station owners often rent the space to host their station and may not be fully aware of title restrictions on the property, even if they sign an agreement with a hydrogen station developer. Researching the title can avoid potential issues upfront and save time in the long run.

³⁰ Some communities have architectural or design review boards that will review projects before they receive planning approval. Others allow planning review in parallel with the building review process.

A major part of the station permitting process is dedicated to ensuring stations are built to meet current codes and standards. The following text provides references to California codes and guidance, which can be amended by local jurisdictions.

Given this reality, the California Building Standards Code, Title 24, can generally be used to plan a permit strategy that is applicable statewide. However, as discussed in the Pre-Application Outreach section, it is important for station developers to meet early in the process with local authorities to ensure projects are designed in compliance with state and local codes and ordinances. A complex permit application may increase the amount of time required to review and approve a package. A best practice is to submit concise but complete permit applications, including enough information to make each department's review as simple and straightforward as possible.

Administrative Approval and Review Limitations

Permit applications for hydrogen fueling stations must be approved through a building permit or similar nondiscretionary permit available online.

As discussed above, per SB 1418, building officials must limit this review of the permit to whether or not the proposed station meets federal, state, and local health and safety requirements. The requirements set by local law must be limited to standards necessary to ensure the station will not have a specific, adverse impact upon public health or safety.

Ultimately, the local fire authority decides whether or not a site can physically host a proposed hydrogen fueling station. This decision is based on the fire authority's review of proposed plans and adherence to the fire code and any local provisions. However, information from NFPA 2, Hydrogen Technologies Code (2026 Edition) can and should be used to estimate a site's ability to host a hydrogen fueling station.³¹

Resources such as the Annexes in NFPA 2, which include properties of hydrogen, explanation of methodologies to develop safety distances, design standard references, etc., as well as reports such as "[Technical Justification for Liquid Hydrogen Exposure Distances](#)" by Sandia National Laboratory, are useful for additional information.³²

31 National Fire Protection Association (2025). *NFPA 2 Code Development*. <https://www.nfpa.org/en/codes-and-standards/nfpa-2-standard-development/2>

32 Sandia National Labs, (2023), Technical justifications for liquid hydrogen exposure distances. <https://www.sandia.gov/research/publications/details/technical-justifications-for-liquid-hydrogen-exposure-distances-2023-02-01/>

Hydrogen Station Safety is a Priority

As outlined in the H2Tools resource³³, safety planning should be integral throughout the design, construction, operation, and maintenance of a hydrogen facility. At minimum, NFPA 2, and the California Fire Code require any hydrogen facility that produces, stores, or handles gaseous or liquid hydrogen in amounts exceeding the maximum allowable quantity (MAQ), or where required by an AHJ, to have an emergency safety plan. The emergency plan is certainly needed for immediate actions taken during a crisis; however, the safety plan is a proactive and ongoing strategy to help mitigate hazards and reduce risk.

As with any project that could impact the health and safety of a community, a hydrogen station operator should develop a project safety plan to address potential risks and impacts to personnel, equipment and the environment. The plan should describe how project safety is communicated and made available to the operating staff, neighboring occupants, and local emergency response officials. A communication plan that employs regular dissemination of safety procedures and practices is critical to avoiding potential safety incidents and assure proper incident response.

Station developers applying for state grant funds through the CEC Grant Funding Opportunities are required to submit a thorough safety plan as part of their application. The plans are reviewed by a third-party team of experts, the [Hydrogen Safety Panel](#). Applications with incomplete or insufficient safety plans are disqualified from the competitive grant process for the funding cycle.

Temporary Fuelers

This section provides a very brief overview of a more complicated topic. AHJs and developers should utilize additional resources and reference applicable codes to ensure a full understanding of the requirements if intending to obtain a permit or utilize a temporary fueler. Note that the provisions of SB 1418 only apply to permanent fueling infrastructure.

As more FCEVs take to the road and the hydrogen station network expands, temporary fuelers provide additional capacity to support high use areas, remote areas, or as a backup for outages. Temporary fuelers have capability to travel to designated locations throughout the state and be placed as a temporary fueling station to fill vehicles. Their designs can vary; some are as simple as storage tubes and a dispenser, while others include compressors, generators, and cooling equipment. All are on trailers hauled by trucks, parked/placed in a specific location for vehicles to come to them and get fuel. In order to convey hydrogen on public roads, temporary fuelers are

33 Hydrogen Tools, Best Practices, Hydrogen Tools, <https://h2tools.org/bestpractices/safety-planning>

required to meet U.S. Department of Transportation (DOT) Standards for transporting flammable gases (see 49 CFR)^{34,35}.

The Compressed Gas Association TB25 “Design Considerations for Tube Trailers,” which has been incorporated by reference into 49 CFR 173.01, offers a solid starting point for planning to comply with DOT regulations and should be used for performing analysis or performance testing. For composite cylinders used to store hydrogen, DOT standards will require a full range of testing to verify integrity. Prior to testing, it is recommended that manufacturers of mobile fuelers contact the Pipeline and Hazardous Materials Safety Administration (PHMSA) at DOT to ensure tests and methods meet all requirements.

In general, when temporary fuelers are placed, they must meet the same requirements as fixed stations, except for specific applications. Manufacturers and users of temporary fuelers should review NFPA 2 to ensure project compliance.

FCEV Repair Facilities and Service Facilities

[NFPA 2: Hydrogen Technologies Code Chapter 18](#) addresses repair garages. The [California Fire Code Chapter 23](#) addresses repair garages for vehicles fueled by lighter than air fuels.^{36,37} Section 2309 “Hydrogen Motor Fuel-Dispensing and Generating Facilities” provides additional detail.

34 Federal Motor Carrier Safety Administration (2013). *How to Comply with Federal Hazardous Materials Regulations*. <https://www.fmcsa.dot.gov/regulations/hazardous-materials/how-comply-federal-hazardous-materials-regulations>

35 Code of Federal Regulations (2025). General requirements for shipment of compressed gases and other hazardous materials in cylinders, UN pressure receptacles, and spherical pressure vessels. <https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-C/part-173/subpart-G/section-173.301>

36 ICC Digital Codes. (2025). 2025 California Fire Code, Title 24, Part 9. [iccsafe.org. https://codes.iccsafe.org/content/CAFC2025P1](https://codes.iccsafe.org/content/CAFC2025P1)

37 National Fire Protection Association (2025). NFPA 2 Code Development. <https://www.nfpa.org/en/codes-and-standards/nfpa-2-standard-development/2>

Renewable Hydrogen Production Facilities

This section provides information on how to permit hydrogen production facilities.

Permitting Pathways for Hydrogen Production Projects

Local Lead Agency Pathway

The local city or county acts as the lead agency, typically undergoing a discretionary review process for a CUP.

CEC Opt-In Certification Pathway

Hydrogen production facilities that utilize non-fossil feedstocks are eligible for the CEC Opt-In permitting pathway. This streamlined process consolidates state permits and mandates a 270-day environmental review timeline with expedited judicial oversight, provided developers commit to community benefit agreements and prevailing wage requirements.

Hydrogen Production Zoning

Zoning codes influence where hydrogen production projects can be sited. In California, any industrially zoned area with sufficient footprint may be suitable. This includes areas coded as M1, M2, and M3 for limited, light, and heavy industrial uses, respectively. If the hydrogen is produced for transportation fuel, it can be zoned in commercial zones as well like C2, C4, C5, and CM zones.

Biogenic hydrogen production facilities may be sited in areas zoned for agriculture in instances where the thermochemical conversion of biomass feedstock into hydrogen, such as through gasification or pyrolysis, meets specific requirements. These requirements typically include a nexus to local agricultural or forestry operations, such as using on-site feedstock or using the biochar co-product on-site.

Hydrogen Production Pathways

Hydrogen can be made through a variety of methods such as through electrolysis, gasification, , pyrolysis, and steam methane reformation. Most hydrogen today is made from steam methane reformation at a central production plant, often at or near an oil refinery, food processing plant, fertilizer plant, or other industrial chemical process plant. During steam methane reformation, water (as steam) reacts with natural gas (mostly methane) to produce carbon dioxide and hydrogen. This process can also utilize biogas as the primary feedstock. Hydrogen is used in the oil refining process for hydrotreating (removing impurities like sulfur, nitrogen, and metals to meet environmental regulations) from crude oil feedstocks and hydrocracking (breaking heavy, low-value oil fractions into lighter, high-value products like gasoline and diesel). If produced off site, hydrogen is transported to the end use or fueling station by truck, or in limited cases, pipeline. While it is also possible to co-locate production at the end-use site, typically hydrogen—either gaseous or liquid—is delivered.

Hydrogen is also produced from renewable sources such as renewable energy or biogenic feedstocks like agriculture residues, woody biomass from forest trimmings, and municipal solid waste. Electrolysis is one method of renewable hydrogen production, which involves electrolyzing (splitting) water with renewable electricity. Biomass gasification and pyrolysis are other methods that convert biogenic feedstock into hydrogen. These production pathways have low carbon intensity (CI), and even a negative CI for biogenic hydrogen.

The abundance of naturally occurring material resources that contain hydrogen opens the potential for a number of cutting edge, lab-proven renewable production methods, such as enzymatic bio-hydrogen and photo electrochemical production, and geologic hydrogen production. The deployment of hydrogen technologies across multiple sectors is expected to spur investments required to scale up these creative production techniques.

As the hydrogen market continues to grow, widespread availability of renewable hydrogen will rise. For more information on research involving renewable hydrogen projects, visit the [National Laboratory of the Rockies \(NLR\) website](#).

Hydrogen Production Facility Permits

Air Quality Permits

Local air quality improvement is a fundamental motivation for pursuing hydrogen and FCEV deployment. Hydrogen production facilities, especially those involving construction activities or processes like steam reforming or gasification, may require air permits. Most hydrogen fueling station arrangements will not require an air district permit to construct or operate, since local emissions will not increase from the sources subject to air district review. This is true for both delivered hydrogen and stations with on-site electrolysis. In many cases, on-site generation using natural gas or biogas as the feedstock will also be exempt from obtaining an air quality permit. However, this presumption should be verified with the local air district. Regardless of whether or not a permit is required, the project may need to be formally registered with the local air district.

Key permits may include:

- **Portable Equipment Registration (PERP)** - Required for temporary use of diesel or gas-powered engines (≥ 50 horsepower) such as generators, compressors, or cranes during construction or commissioning phases.
- **Authority to Construct (ATC)** - Must be obtained before installing any stationary equipment that emits air pollutants, including process heaters, flares, compressors, or backup generators.
- **Permit to Operate (PTO)** - Issued once the stationary emission sources are installed, tested, and ready for regular operation. This permit ensures ongoing compliance with local air quality regulations.
- **Dust Control or Fugitive Emissions Permit** - Often needed during site preparation, grading, or construction to manage particulate emissions, especially in areas designated as non-attainment for air quality standards.
- **Greenhouse Gas (GHG) Reporting** - may be required if indirect emissions (e.g., from construction activities, backup generators, or electricity used from non-renewable sources) exceed 10,000 metric tons of CO_{2e} annually. Full renewable sourcing of electricity helps minimize or avoid this threshold.

Contact your [Regional Air District](#)^{38,39}

Water Permits

Here is a list of possible permits you may need from California's Regional Water Boards:

- **Industrial General Permit** – Regulates industrial storm water discharges and authorized non-storm water discharges from industrial facilities. For biogenic hydrogen production, this can cover operations with non-composting operations focused on wood chips and grinding.⁴⁰
- **Water Rights Permit** - If you are diverting surface water or using water from a stream/river
- **Water Discharge Requirements (WDRs)/National Pollutant Discharge Elimination System (NPDES) Permit** - If the facility will discharge any wastewater (either treated or untreated) into waters of the State or ocean, you need a WDR or an NPDES permit.
- **Stormwater Permits** - Needed for both construction and operational phases. If construction disturbs 1+ acres or is part of a larger plan of development that does, you'll need coverage

³⁹ California Air Resources Board, *California Air Districts*. <https://ww2.arb.ca.gov/california-air-districts>

⁴⁰ State Water Resources Control Board. *Industrial Stormwater Program*, https://www.waterboards.ca.gov/water_issues/programs/stormwater/industrial.html

under the Construction Stormwater General Permit. Once operating, if industrial activities are exposed to stormwater and stormwater discharges leave the property to the waters of the U.S., you may need coverage under the Industrial General Permit.

- **Water Supply/Drinking Water Permits** - If the facility itself includes water treatment or provides its own water supply, it may need permits under the Drinking Water Branch.

Contact your [Regional Water Board](#) for more information.⁴¹

Waste Permits

For gasification, pyrolysis, or production projects using biogenic feedstock, the facility may be required to obtain permits or authorizations from [CalRecycle](#) for the usage of municipal solid waste (MSW). Note that wood waste facilities are exempt from CalRecycle oversight, per (PRC 40195.1(b)), but may still be required to go through an exemption process and pay an annual fee.

Biogenic Production Pathway Considerations for Developers

- Define feedstock sourcing and pathways to ensure compliance with chain of custody standards and a robust data set for calculating Carbon Intensity (CI).
- Feedstock storage and management will likely require a permit from the Regional Water Quality Control Board. The permit process should start as early as possible but needs to be started at least 90 days prior to feedstock accumulation.
- Operational Compliance and Reporting
 - Use good data tracking protocol and standards for LCA calculations, such as ISO/TS 19870:2023, which provides a methodology for determining the emissions associated with production, conditioning, and transport of hydrogen.
 - Implement continuous tracking of feedstock usage, energy sourcing, emission controls to ensure LCFS eligibility.

Geologic Well Permits

For geologic hydrogen production projects, the facility must be required to obtain permits from California Geologic Energy Management Division (CalGEM) for Notice of Intention to Drill geothermal resource wells. In many cases, geologic hydrogen projects can be permitted under existing geothermal rules although this will need to be determined on a case-by-case basis depending on the project location and if the drilling would encounter any hydrocarbon layers.

Visit [CalGEM](#) for more information.

⁴¹ California State Water Resources Control Board. *Regional Water Quality Board Directory*
https://www.waterboards.ca.gov/about_us/contact_us/rwqcbcs_directory.html

Hydrogen Distribution and Storage

Hydrogen Distribution

To meet California's 1,700-fold increase in renewable hydrogen supply to achieve carbon neutrality by 2045, the state must expand its midstream infrastructure. Hydrogen can be distributed by truck, pipeline, or even by rail or ships. As of 2025, most hydrogen is delivered by truck to end users. However, as the hydrogen economy scales, there will likely be an increase in hydrogen pipelines and other methods that significantly reduce the total cost of hydrogen.

Hydrogen can also be transported in the form of ammonia, a derivative of hydrogen and a commodity with a higher density by volume that is easier to transport. It is easier to move larger volumes of liquid ammonia than liquid hydrogen since it requires less specialized equipment to keep it in liquid form and the molecules are larger and less prone to leakage. However, ammonia is toxic and requires strict handling protocols, such as the Process Safety Management for high ammonia volumes, OSHA 29 CFR 19010.119. Ammonia can be distributed by truck, maritime ships and barges, rail, and pipelines. It can either be used directly in applications such as fertilizer, chemical processing, or maritime shipping fuel, or it can be converted back to hydrogen.

Truck Distribution

Until the hydrogen pipeline network matures, trucks serve as the primary delivery method. When hydrogen is distributed by truck, it is either in compressed gas or cryogenic liquid form.

Gaseous hydrogen is typically delivered via high-pressure delivery. This is similar to today's gasoline deliveries in that hydrogen is transferred by hose from a specialized delivery trailer into on-site storage vessels. This process typically takes approximately 30 minutes, depending on site logistics and quantity of hydrogen exchanged. Depending on volumes and station need, a high-pressure delivery truck can fill or top-off multiple stations. Another technique, although not utilized as much, is the "drop-and-swap" method that swaps full trailers for empty ones at lower-volume stations.

Liquid hydrogen is delivered by a tanker truck through a standard industrial gas procedure. The driver connects the hose from the truck to a valve on the storage tank and offloads liquid hydrogen. Because liquid hydrogen is at a cryogenic temperature, a vapor cloud forms around the transfer point. Therefore, venting through a vent stack either off the truck or the station is a standard procedure.

Pipeline Distribution

Pipelines are the most cost-effective method for moving large volumes of hydrogen. California has approximately 38 miles of dedicated hydrogen pipelines in operation and there are roughly 1,600 miles of hydrogen pipelines across the country. If a hydrogen pipeline is available, hydrogen end

users like fueling stations and ports can draw from the pipeline then compress and dispense the hydrogen onsite.

Pipeline Oversight

The federal DOT has the authority to regulate both inter- and intrastate pipelines used for energy commodities. Within the DOT, the PHMSA sets minimum safety requirements for, and has regulatory jurisdiction over, about 700 miles of hydrogen pipelines. The Federal Energy Regulatory Commission (FERC) has jurisdiction over interstate pipelines that carry a blend of natural gas and hydrogen. However, FERC does not have any regulation regarding the siting and construction of hydrogen-dedicated pipelines. In California, the CPUC and the OSFM are the primary AHJs for pipeline safety.

Pipeline Standards

- **DOT 49 CFR Part 192:** Federal pipeline safety regulation on the transportation of gas by pipeline
- **American Society of Mechanical Engineers (ASME) B31.12:** Primary design code for high pressure hydrogen pipelines

Hydrogen Storage

Hydrogen has been used in industry for decades and is stored as either a gas or a liquid and on land or underground. When hydrogen is stored in gaseous form, it is commonly pressurized in specialized high-pressure cylinders that are subject to ASME and/or DOT standards and regulations. Cryogenic liquid hydrogen (-423°F) is stored in a double-walled vacuum-insulated tank that is also constructed to industry standards, such as CGA H-3 Standard for Cryogenic Hydrogen Storage. All hydrogen storage vessels are constructed from hydrogen-compatible materials to existing industry standards. Storage systems contain redundant safeguards such as pressure and temperature relief and safe venting.⁴² Large quantities^{43,44} of lower pressure gaseous hydrogen, can be stored underground in caverns. Oversight of existing sub-terranean gas storage is overseen by state and federal authorities

⁴² Compressed Gas Association. (2026). *Standard for Cryogenic Hydrogen Storage (an American National Standard)*. <https://portal.cganet.com/publication/details?id=H-3>

⁴³ Linde (2022) *Storing Hydrogen in Underground Salt Caverns*. <https://www.linde.com/clean-energy/our-h2-technology/hydrogen-storage>

⁴⁴ Gianni, E., Tyrologou, P., Couto, N., Carneiro, J. F., Scholtzová, E., & Koukouzas, N. (2024). *Underground hydrogen storage: The techno-economic perspective*. *Open Research Europe*, 4, 17. <https://doi.org/10.12688/openreseurope.16974.2>

Regulations and Permit Requirements for Hydrogen Storage

The applicable requirements may depend on the storage method of hydrogen as it can be compressed gas, liquid hydrogen, geological, or material-based (e.g. in the form of ammonia).

Federal

- FAA 14 C.F.R. § 420.66
- EPA Underground Injection Control Program, 40 C.F.R. 144, 146*
- EPA Risk Management Program (RMP), 40 C.F.R. § 68.10
- OSHA Hazardous Materials, 29 C.F.R. § 1910.103

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PART 04: Looking Forward

The State of California is firmly committed to the success of its renewable hydrogen ecosystem and a carbon-neutral economy. As we look to the future, the question now before us is whether we can scale the market in time to meet our climate and health targets. This necessary scale hinges on establishing business cases that attract growing private investment—minimizing permitting uncertainty is fundamental to success.

As renewable hydrogen projects increase in number and scale across the state, many jurisdictions and local officials are becoming increasingly familiar with hydrogen technologies. While this growing knowledge is a vital asset, it is important for stakeholders to engage in continuous education as the industry evolves and as jurisdictions may experience personnel changes.

Hydrogen and fuel cell technologies are advancing, and the applicable codes and standards are evolving in tandem with these technologies. Successful deployment of these technologies will continue to rely upon early outreach, education, and engagement between project developers, technology providers, local communities, and officials.

Together, we must continue to actively collaborate to overcome barriers and take tangible steps to accelerate the renewable hydrogen and fuel cell market. We must devote attention to growing the medium- and heavy-duty vehicle market, to increasing the production of renewable hydrogen, and to cultivating opportunities to diversify the renewable hydrogen and fuel cell portfolio to other applications. We must also harness the global momentum in technology and market advancements. In doing so, we can unlock clean mobility, power, and heavy-industrial options for millions of Californians, create a self-sustaining market, and generate high-quality, green jobs. As a result, all Californians will breathe cleaner air.

Renewable hydrogen and fuel cell technology is an essential aspect of our clean energy transition and GO-Biz is committed to helping realize its potential. We are always looking for ways to improve. If you have insights or ideas that can help improve hydrogen project development processes, please share them with the GO-Biz Hydrogen team (hydrogen@gobiz.ca.gov). The keys to success are in all our hands.

PART 05: Appendix

Acronyms

A

ADA: Americans with Disabilities Act

AHJ: Authorities Having Jurisdiction

ASME: American Society of Mechanical Engineers

ATC: Authority to Construct

C

Cal-ARP: California Accidental Release Program

CalGEM: California Geologic Energy Management Division

CalRecycle: California Department of Resources Recycling and Recovery

CARB: California Air Resources Board

CATEX: Categorical Exclusion

CBAs: Community Benefit Agreements

CCR: California Code of Regulations

CDFA: California Department of Food and Agriculture's

CEC: California Energy Commission

CEQA: California Environmental Quality Act

CGA: Compressed Gas Association

CHS: Center for Hydrogen Safety

CI: Carbon Intensity

CPUC: California Public Utilities Commission

CUP: Conditional Use Permit

CUPA: Certified Unified Program Agencies

CWA: Clean Water Act

D

DCS: Design & Construction Services

DMS: California Department of Food and Agriculture, Division of Measurement Standards

DOT: U.S. Department of Transportation

E

EA: Environmental Assessment

EIR: Environmental Impact Report

EIS: Environmental Impact Statement

ESA: California Endangered Species Act

F

FAA: Federal Aviation Administration

FERC: Federal Energy Regulatory Commission

FEMA: Federal Emergency Management Agency

FCEV: Hydrogen Fuel Cell Electric Vehicle

FONSI: A Finding of No Significant Impact

G

GHG: Greenhouse Gas

GO-Biz: Governor's Office of Business and Economic Development

H

HMBP: Hazardous Materials Business Plan

HyStEP: Hydrogen Station Equipment Performance

I

IFC: International Fire Code

ISO: international Organization for Standardization

ITP: Incidental Take Permit

L

LADBS: Los Angeles Department of Building and Safety

LADWP: Los Angeles Department of Water and Power

LCFS: Low Carbon Fuel Standard

M

MAQ: Maximum Allowable Quantity

MND: Mitigated Negative Declaration

N

ND: Negative Declaration

NFPA: National Fire Protection Association

NPDES: National Pollutant Discharge Elimination System

NRTL: Nationally Recognized Testing Laboratory

O

OSHA: Occupational Safety and Health Administration

P

PG&E: Pacific Gas and Electric Company

PHMSA: Pipeline and Hazardous Materials Safety Administration

PERP: Portable Equipment Registration

PTO: Permit to Operate

R

RCRA: Resource Conservation and Recovery Act

ROD: Record of Decision

S

SCE: Southern California Edison

SDG&E: San Diego Gas & Electric

SMUD: Sacramento Municipal Utility District

SOSS: Station Operational Status System

SWPPP: Stormwater Pollution Plans

T

TSCA: Toxic Substances Control Act

W

WDRs: Water Discharge Requirements

Z

ZEV: Zero-Emission Vehicle

Regulation, Codes, and Standards

As with any development project, ensuring compliance with relevant regulations, codes, and standards is critical to obtain approval and successfully construct a project.

The list that follows is California centric but does include some national and international standards. It is informational and reasonably comprehensive. However, it does not list every regulation, code, and standard that may be used in every jurisdiction. Project developers and AHJs should ensure they use the most recent version of the listed regulations, codes, and standards.

In addition to the list below, H2tools.org offers a centralized codes and standards database. The database is maintained by the Pacific Northwest National Laboratory, through the U.S. Department of Energy (DOE) support. This resource will help ensure all relevant codes and standards are addressed when permitting a hydrogen project.

California Codes^{45,46}

- California Fire Code (International Fire Code)
- California Electric Code (NFPA 70 with California amendments)
- California Building Code (International Building Code)
- California Mechanical Code (International Mechanical Code)
- Certified Unified Program Agency (CUPA)

North American Codes⁴⁷

- NFPA1 Fire Code
- International Fire Code
- NFPA 2 Hydrogen Technologies Code
- CAN/BNQ 1784-000
Canadian Hydrogen Installation Code

U.S. Federal Regulations

- OSHA Regulations 29 CFR 1910 Subpart H, 1910.103 Hydrogen
- DOT Regulations including:
 - 40 CFR Part 68 Risk Management Plan (as applicable)
 - 49 CFR Subchapter C Hazardous Materials Regulations

⁴⁵ Office of the State Fire Marshal, *Code Development and Analysis*, <http://osfm.fire.ca.gov/codedevelopment/codedevelopment.php>.

⁴⁶ California Building Standards Commission, *Current 2013 Codes*, last modified 2014, <https://www.dgs.ca.gov/BSC/Codes>.

⁴⁷ National Fire Protection Association, *Home Page*, <http://www.nfpa.org/>.

- See the U.S. Department of Energy H2IQ Hour: Overview of Federal Regulations for Hydrogen Technologies in the United States⁴⁸ for further information

Although some listed and labeled components are available, there is still rather limited choice, due to several factors which include new and advancing technology and hardware, limited production numbers and sales resulting from a relatively small market for hydrogen infrastructure. Standards are in existence, with more in development, among the various standards development organizations listed above. Additionally, accredited certification bodies can and do develop their own internal programs to attest that a component or system meets a standard (i.e. UL, Intertek)

Station Developer Standards (Not an exhaustive list)

Nozzle/Receptacle Hardware:

- ISO 17268-1, Gaseous Hydrogen Land Vehicle Refueling Connection Devices Part 1
- ISO 17268-2 Gaseous hydrogen land vehicle refueling connection devices—Part 2: Part 2: Flow capacities greater than 120 g/s (in development)
- ISO 13984- Liquid Hydrogen -- Land vehicle fuelling system interface
- SAE J2600 Compressed Hydrogen Surface Vehicle Fueling Connection Devices

Fueling Protocols, Communication, Fuel Quality

- SAE J2601, Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles
- CSA/ANSI HGV 4.3 Test methods for hydrogen fuelling parameter
- SAE J2601/5, High-Flow Prescriptive Fueling Protocols for Gaseous Hydrogen Powered Medium and Heavy-Duty Vehicles 94
- CSA HGV 4.3.5 Test methods for high-flow hydrogen fuelling parameter evaluation⁴⁹
- SAE J2799, Hydrogen Surface Vehicle to Station Communications Hardware and Software
- SAE J2719, Hydrogen Fuel Quality for Fuel Cell Vehicles
- ISO 14687 – Hydrogen fuel quality
- ISO 19885-3, Gaseous hydrogen—Fueling protocols for hydrogen-fueled vehicles—Part 3: High flow hydrogen fueling protocols for heavy duty road vehicles

Other Components

- CSA HGV 4 -Series and other CSA Group hydrogen standards for various components (hoses, valves, compressors, dispensers), and the station (Currently being updated)

⁴⁸ Hydrogen Fuel and Technologies Office. (2021) *H2IQ Hour: Overview of Federal Regulations for Hydrogen Technologies in the United States*, U.S Department of Energy. <https://www.energy.gov/eere/fuelcells/articles/h2iq-hour-overview-federal-regulations-hydrogen-technologies-united-states>

⁴⁹ Note as of March 4, 2026, this protocol is under development

SB 1418 Sample Ordinance Template

ORDINANCE NUMBER _____

AN ORDINANCE OF THE CITY COUNCIL / COUNTY BOARD OF SUPERVISORS OF THE CITY OF _____ / COUNTY OF _____

SETTING FORTH PROCEDURES FOR EXPEDITING PERMITTING PROCESSING FOR HYDROGEN FUELING SYSTEMS

WHEREAS the State of California and the City of _____ / County of _____ has consistently promoted and encouraged the use of fuel-efficient hydrogen vehicles; and

WHEREAS, the State of California adopted Senate Bill 1418, which requires local agencies to adopt an ordinance and checklist that creates an expedited and streamlined permitting process for hydrogen fueling stations; and

WHEREAS, creation of an expedited, streamlined permitting process for hydrogen fueling stations would facilitate convenient refueling of hydrogen vehicles and help reduce the City's / County's reliance on environmentally damaging fossil fuels.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF _____ / COUNTY BOARD OF SUPERVISORS OF THE COUNTY OF _____ DOES ORDAIN AS FOLLOWS:

MUNICIPAL CODE / COUNTY CODE CHAPTER _____

SECTION 1. PURPOSE

The purpose of this Chapter is to promote and encourage the use of hydrogen fuel cell electric vehicles by creating an expedited, streamlined permitting process for hydrogen fueling stations while promoting public health and safety and preventing specific adverse impacts in the development and use of such hydrogen fueling stations. This Chapter is also purposed to comply with California Government Code Section 65850.7.

SECTION 2. DEFINITIONS

- (d) "Hydrogen fueling station" means the equipment used to store and dispense hydrogen fuel to vehicles according to industry codes and standards that is open to the public.

- (d) “Specific, adverse impact” means a significant, quantifiable, direct, and unavoidable impact, based on objective, identified, and written public health or safety standards, policies, or conditions as they existed on the date the application was deemed complete.
- (d) “A feasible method to satisfactorily mitigate or avoid the specific, adverse impact” includes, but is not limited to, any cost-effective method, condition, or mitigation imposed by a city, county, or city and county on another similarly situated application in a prior successful application for a permit.
- (d) “Electronic submittal” means the utilization of one or more of the following:
 - a. Electronic mail or email.
 - b. The internet.
 - c. Facsimile.

SECTION 3. EXPEDITED PERMITTING PROCESS

Consistent with Government Code Section 65850.7, the Building Official shall implement an expedited, streamlined permitting process for hydrogen fueling stations and adopt a checklist of all requirements with which hydrogen fueling stations shall comply with in order to be eligible for expedited review. The expedited, streamlined permitting process and checklist may refer to the recommendations found on the Governor’s Office of Business and Economic Development’s website. The City’s / County’s adopted checklist shall be published on the City’s / County’s website.

SECTION 4. PERMIT APPLICATION PROCESSING

- (b) Prior to submitting an application for processing, the applicant shall verify that the installation of a hydrogen fueling station will not have specific, adverse impact to public health and safety and building occupants. Verification by the applicant includes but is not limited to: architectural, fire, building, electrical, and mechanical plans. A permit application that satisfies the information requirements in the City’s / County’s adopted checklist shall be deemed complete and be promptly processed. Upon confirmation by the Building Official that the permit application and supporting documents meet the requirements of the City / County adopted checklist and is consistent with all applicable laws and health and safety standards, the Building Official shall, consistent with Government Code Section 65850.7, approve the application and issue all necessary permits. Such approval does not authorize an applicant to utilize the hydrogen fueling station until approval is granted by the City / County. If the Building Official determines that the permit application is incomplete, a written correction notice shall be issued to the applicant, detailing all deficiencies in the application and any additional information required to be eligible for expedited permit issuance.

- (b) Consistent with Government Code Section 65850.7, the Building Official shall allow for electronic submittal of permit applications covered by this Ordinance and associated supporting documentation. In accepting such permit applications, the Building Official shall also accept electronic signatures on all forms, applications, and other documentation in lieu of a wet signature by any applicant.

SECTION 5. TECHNICAL REVIEW

- (a) It is the intent of this Ordinance to encourage the installation of hydrogen fueling stations by removing obstacles to permitting for hydrogen fueling stations so long as the action does not supersede the Building Official's authority to address higher priority life-safety situations. If the Building Official makes a finding based on substantial evidence that the hydrogen fueling station could have a specific adverse impact upon the public health or safety, as defined in this Chapter, the City / County may require the applicant to apply for a use permit.

SECTION 6. HYDROGEN STATION INSTALLATION REQUIREMENTS

A hydrogen fueling station shall meet all the following, as applicable:

- (d) Safety and performance standards established by the Society of Automotive Engineers and accredited nationally recognized testing laboratories.
- (d) All applicable state laws and regulations pertaining to hydrogen fueling, including any rules established by the California Air Resources Board, California Energy Commission, or California Department of Food and Agriculture regarding safety, reliability, weights, and measures.
- (d) National Fire Protection Association, Hydrogen Technologies Code - NFPA 2
- (d) Guidance established by the Governor's Office of Business and Economic Development, as outlined in the Hydrogen Station Permitting Guidebook.

SECTION 7. Any provision of the City of _____ Municipal Code / County of _____ County Code or appendices thereto, inconsistent with the provisions of this Ordinance, to the extent of such inconsistencies and no further, are hereby repealed or modified to that extent necessary to effect the provisions of this Ordinance.

SECTION 8. If any section, subsection, sentence, clause, or phrase of this Ordinance is for any reason held to be invalid or unconstitutional by a decision of any court of any competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Ordinance. The City Council / County Board of Supervisors hereby declares that it would have passed this Ordinance, and each and every section, subsection, sentence, clause, or phrase not declared invalid or unconstitutional without regard to whether any portion of the Ordinance would be subsequently declared invalid or unconstitutional.

SECTION 9. The Mayor shall sign and the City / County Clerk shall attest to the passage of this Ordinance. The City / County Clerk shall cause this Ordinance, or a summary thereof to be published once in the official newspaper within 15 days after its adoption. This Ordinance shall become effective on [enter date].

APPROVED AS TO FORM:

NAME

City Attorney / County Counsel

(Replace with City City/County of _____
or County Logo)

CHECKLIST FOR PERMITTING HYDROGEN FUELING STATIONS (SB 1418)

Please complete the following information related to permitting and installation of Hydrogen Fueling Station as a supplement to the application for a building permit. This checklist contains the technical aspects of hydrogen fueling station installations and is intended to help expedite permitting and use for hydrogen fueling stations.

Upon completion of this checklist, a permit shall be issued to the applicant. However, if it is determined that the installation might have a specific adverse impact on public health or safety, additional verification will be required before a permit can be issued.

Section 1: Project Details
Project Address:
<input type="checkbox"/> Commercial/Industrial Zone (No Surrounding Residential Units) <input type="checkbox"/> Existing Retail Fueling Station/Travel Center
Location and Number of Hydrogen Dispensers/Fueling Positions to be Installed:
Type of Fueling Available (i.e., Light-Duty Vehicle/Heavy-Duty Vehicle, Retail/Commercial, H35/H70, etc.):
Storage Type and Volume (i.e gaseous or liquid; storage capacity in kilograms or metric tonnes).

Description of Work:

Section 2: Contact Information	
Applicant Name:	
Applicant Phone & Email:	
Contractor Name (if applicable):	License Number & Type (if applicable):
Contractor Phone & Email (if applicable):	
Owner Name:	
Owner Phone & Email:	
Section 3: Site/Station Plans & Equipment	
Existing Site Plan: Show lot dimension of the property and all existing conditions/buildings/structures.	
Proposed Site Plan: Show all proposed conditions/structures/equipment (including setback measurements and equipment dimensions).	
Elevation/Perspective Drawings: Show all equipment and structures (drawn to scale, including all proposed refueling canopies).	

Section 4: Permit Package Plans & Drawings
Civil/Architectural Plan Set: (Title Page, Notes, Topo/Demo Plans, Proposed Site Plan, Precise Grading and Drainage Plans, Erosion Control Plans and Details, Construction and Framing Details, Elevations, and Landscaping and Irrigation Plans.

Fire Plan Set: (Title page, Notes, Fire Plan Equipment, H2 Storage Equipment and Details, Fire Plan Setback Details, Hazardous Area Class Drawings, NFPA-2 Tables, Safety and Fire Signage Plans, Safety and Fire Equipment Location Plans (ESD, fire extinguisher, alarm light, flame detector, and gas sensor locations).

Building Plan Set: (Title Page, Notes, Structural Specifications and Project Data, Site Plan Layout, Foundation Plan, Foundation Details, Bollard Details, Framing Plans and Details).

Mechanical Plan Set: (Codes and Regulations Piping Plan, Pipe Schedule and Material, Piping Details).

Electrical Plan Set: (Title Page, Notes, IEEE, IEC, and Applicable NFPA Codes, Electrical Specifications, Electrical Single Line Diagram, Electrical Load Schedule, Electrical Telecom Utility Site Plan, Electrical Power Site Plan, Grounding Site Plan and Details, Electrical Installation Details, Electrical Line-Voltage Conduit Schematic, Electrical Low Voltage Site Plan, Electrical Low Voltage Conduit Schematic, Low Voltage Wiring Schedules).

Title 24 Report/Forms: (Title 24 Report/Forms, Calculations)

I hereby acknowledge that the information presented is a true and correct representation of existing conditions at the job site and that any causes for concern as to life-safety verifications may require further substantiation of information.

Signature of Permit Applicant: _____ Date: _____

Light-Duty Hydrogen Station Commissioning Process

Once a station has been fully constructed and a notice of completion by the station developer has been submitted, final commissioning begins. Once commissioning is completed, the station can be opened to the public. An “open” retail station can accept any FCEV driver with a credit card or fleet fueling card.

Currently, a retail station’s final commissioning involves five key parties: the station developer, local AHJ, CARB or accredited third-party testing service, auto manufacturers (for the near term), and CA CDFG-DMS. The following steps are general milestones and not meant to serve as a complete commissioning checklist. This process will continue to evolve as the market matures and moves toward the implementation of factory-certified components and systems, hence reducing the need for extensive on-site confirmation by the accredited third-party. The state may continue to offer oversight and compliance spot checks.

Station Developer Commissioning. The station developer is responsible for constructing the station to the plans and specifications approved by the AHJ. The developer will also fill the system with hydrogen and administer a series of tests to ensure the station performs as expected. Once construction and verification has been completed, the developer will schedule a final inspection by the AHJ to approve the station for operation.

Hydrogen Fuel Quality Testing. The hydrogen being dispensed must be analyzed to ensure it conforms with the hydrogen fuel quality requirements in CCR Title 4, Division 9, Chapter 6, Article 8, Sections 4180 and 4181 which adopts [SAE J2719 “Hydrogen Fuel Quality for Fuel Cell Vehicles](#). [This step is typically required prior to](#) step 3, fueling protocol confirmation. Per the requirements of a station having received funding from the State of California, a hydrogen fuel quality assessment should be done regularly, at a minimum of every three months or if any major work is performed on the station systems. Additionally, DMS spot checks hydrogen retail stations periodically to ensure compliance to SAE J2719.

Fueling Protocol Confirmation. Currently, CARB’s HyStEP (Hydrogen Station Equipment Performance device) testing team works closely with station developers to ensure new stations fill FCEVs according to industry [agreed upon fueling protocols \(SAE J2601 “Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles”\)](#). Once successful testing (ANSI/CSA HGV 4.3 test matrix) is complete, automakers perform final test fills to confirm that the station performs to achieve customer satisfaction. Ultimately, the goal is for a seamless process whereby stations are installed and operational without the oversight of the vehicle manufacturers, similar to how conventional fueling stations are developed.

Commercial Testing. As for all retail fuel sales, prior to approval of sales, a station must be certified by DMS or a Registered Service Agent (RSA) to ensure that: a kilogram of hydrogen sold is a kilogram of hydrogen received, that the point of sale system functions properly, and that hydrogen

dispensed meets the purity requirements for use in an FCEV (the fuel quality tests take place in Step 1 and can be done by a commercial lab)

Opening the Station for Public Use. Currently, a station will be open to FCEV drivers when each of the following steps have been completed:

- a. The AHJ has issued the final occupancy permit to the station developer;
- b. Fueling protocol performance has been confirmed by HyStEP or a recognized third-party such as an NRTL, and at least two automakers have confirmed the station meets protocol expectations, and their customers can fuel at the station;
- c. The dispenser has been certified to sell hydrogen by the kilogram (pursuant to CCR Title 4, Division 9, Chapter 1);
- d. The station has a functional point of sale system;
- e. The station is connected to the Station Operational Status System (SOSS), maintained by the H2FCP; and
- f. The station developer declares the station is ready to serve the public.

In the near term, the State of California, led by GO-Biz's Zero Emission Vehicle Market Development Office, in collaboration with H2FCP, works with stakeholders to facilitate the steps each party takes to "open" stations to FCEV drivers. Station status is publicly communicated and displayed on the H2FCP website. Longer term, we expect a technical third party (public or private) to verify the station and the station developer to officially declare the station open to the public.

State of California representatives are actively working with stakeholders to improve the commissioning process so that developers and local jurisdictions can seamlessly open to the public. Improvements will be collected and shared through state, local, and industry relationships.

Interfacing with CUPAs

Certified Unified Program Agencies (or CUPAs) are consolidated local entities with jurisdiction over the management of hazardous materials and wastes in California. During the hydrogen project development process, both project developers and AHJs should be aware of the standard CUPA requirement to develop a Hazardous Materials Business Plan (HMBP).

HMBPs are overview documents that contain information on the location, type, quantity, and health risks related to hazardous material stored, used, or disposed of by businesses operating in the state. As with any fueling project, a hydrogen station operator is required to develop a HMBP.⁵⁰ The station's HMBP is kept on file with the AHJ, which is typically the local fire or environmental health department. The HMBP should include a complete inventory of all hazardous materials on-site, demonstration of compliance with the California Fire Code, emergency response plans and procedures, a training plan, and procedures for documenting compliance with training and inspection requirements. AHJs can provide clear guidance on what should be included in the HMBP and what level of detail is necessary to meet CUPA requirements. It is also important to note that hydrogen is not an "Extremely Hazardous Substance," so it will not be subject to additional reporting requirements for this category. State law required that these plans be filed within 30 days of the material being brought on-site.

Another related CUPA program is the California Accidental Release Program (Cal-ARP), which requires implementation of a risk management program and submission of a risk management plan to prepare for accidental releases of hazardous substances. This only applies if more than 10,000 pounds of hydrogen (4,536 kilograms) are stored or processed on-site at one time.⁵¹ As an example, light-duty hydrogen stations in California ranging from 130 to 5,300 pounds (60 to 2,400 kg) of hydrogen storage are not required to participate in the Cal-ARP program. However, heavy-duty hydrogen stations that are expected to range between 17,600 to 70,400 pounds (8,000 to 32,000 kg), would trigger the requirement to prepare and submit a risk management plan.

There is an exclusion in the Cal-ARP regulations for flammable substances being used as fuel and held at retail facilities, "Flammable substances used as fuel or held for sale as fuel at retail facilities. A flammable substance listed in Section 2770.5, Table 2, is nevertheless excluded from all provisions of this chapter when the substance is used as a fuel or held for sale as a fuel at a retail

⁵⁰ CalEPA.. *Hazardous Materials Business Plan FAQ*, <https://calepa.ca.gov/hazardous-materials-business-plan-program/hazardous-materials-business-plan-faq/>

⁵¹ CalEPA. (2026). *California Accidental Release Prevention*, <https://calepa.ca.gov/california-accidental-release-prevention/>

facility.” Therefore, in most cases, light-duty hydrogen stations, regardless of size, and future retail heavy-duty stations would be exempt from this requirement.

Cal-ARP enforcement officials can contact the California Environmental Protection Agency for further information on the program and requirements.

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GO-Biz Hydrogen Permitting Guidebook

The Governor's Office of Business and Economic Development

[Hydrogen Team](#)

hydrogen@gobiz.ca.gov

